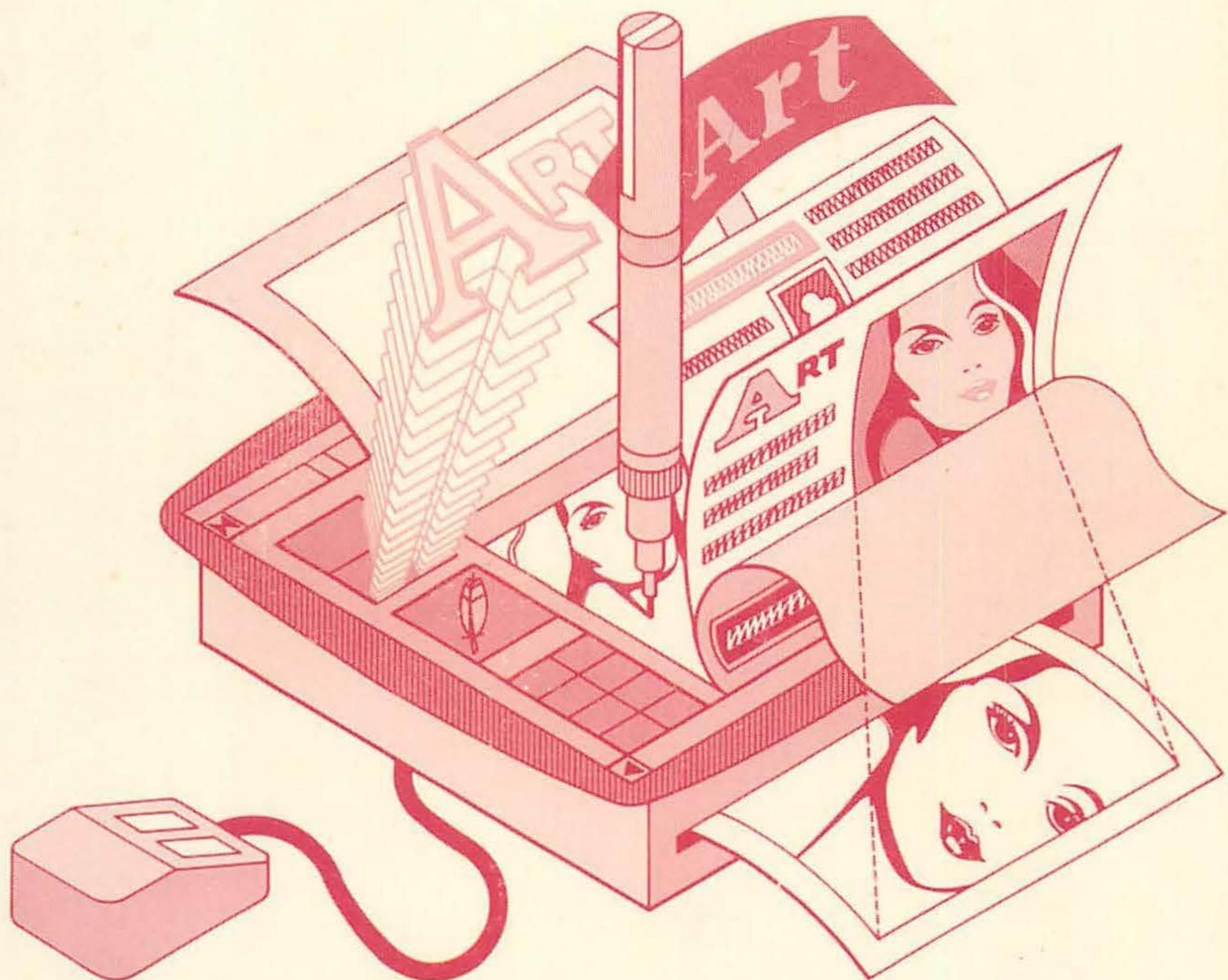


GEM[®]Artline[™] by CCP

Reference Guide



 DIGITAL RESEARCH[®]



Reference Guide

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All illustrations in this manual were produced with GEM® Software:
GEM® Artline™, GEM® Draw Plus™, and GEM® Paint™

GEM® Artline™ Reference Guide
First Edition: October 1988

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Introduction

The *GEM Artline Reference Guide* is a companion volume to the *GEM Artline User's Guide*, providing full descriptions of two of the most important aspects of the program—the Toolbox and the menu commands—plus a brief description of some basic GEM applications techniques.

- Section 2, "The Toolbox," describes the tools with which you draw and modify your pictures in GEM Artline. Using these tools, you can draw an infinite variety of curves—plus rectangles, ellipses, and text in almost any size. You can draw all these *picture elements* in any of sixteen colors and 100 shades, with colored outlines of varying thicknesses.

Having drawn a picture element, you can use other tools in the Toolbox to modify the element: rotating, moving, scaling, or copying it. You can skew the element, stretching it from one of its corners or tipping it over on one side. Finally, using the Plane tool, you can change the element's shape by moving any of the points that define the curves and lines of which the element is made.

- Section 3, "Menu Commands," describes all the commands in GEM Artline's menus. If you have worked through the tutorial material in the user's guide, you have used most of the commands, but this guide covers each command in full reference manner. If you will be producing PostScript® output—including color separations—this guide describes the PostScript command in detail.
- Appendix A, "Basic Tools," describes mouse techniques common to all GEM applications programs. It also describes the ITEM SELECTOR, the dialog with which you select and name files.

This appendix is not intended to take the place of your *GEM/3 Desktop User's Guide*. This guide and the *GEM Artline User's Guide* assume that you are familiar with basic GEM application operation.

How to Use This Guide

You'll find this guide most useful once you've familiarized yourself with GEM Artline by working through some of the tutorial steps outlined in the user's guide. The reference guide makes no attempt to teach you *how* to draw or *what* to draw. Instead, it describes how you can use the tools and menus to achieve your artistic goals.

Terminology and Notation

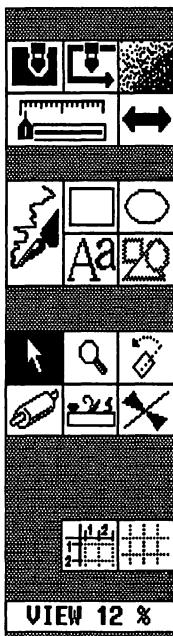
The guide uses the word *element* to describe the things you draw with GEM Artline. If you have questions about your work, look in the Index under "elements." You'll probably find a reference there to what you want to know.

The guide uses a special typeface in a number of places, principally to indicate user input, words that you type at your keyboard. This is what the typeface looks like:

GEM Artline

The Toolbox

The *Toolbox* is the collection of icons on the left side of the screen. This section describes the use of each tool in the Toolbox.



Some of the tools display pop-up menus when you click on them.

When you click on other tools to select them, their icons become highlighted to show that they are in use.

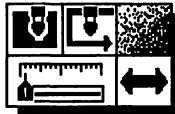
In this illustration, the *Selector* tool is highlighted.

To make a larger work area available, select the tool you'll be using and then choose the **Hide Tools** command from the Options Menu to switch the Toolbox display off. The command changes to **Show Tools** when the Toolbox is not displayed. To switch the Toolbox display back on (to select another tool, for example), choose the **Show Tools** command.

The GEM Artline tools are identified below. The page labels tell you where each tool is described.

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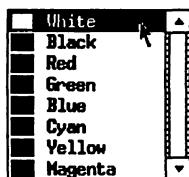


View Box
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Fill Color



Fill color refers to the color that appears inside any solid element—rectangle, ellipse, curve or polygon drawn with the Quill, even text. With the Fill Color tool, you can preset the fill color for the elements you will draw, or you can change the fill color of existing elements.



When you click on the Fill Color tool, a color palette "pops up" on top of the Toolbox. Clicking on a color in the palette causes all selected elements to be filled with this color. If you have a monochrome monitor, you can still set colors, but they will only be visible when you output to a color printer. If you have a color monitor, these color choices are visible on the screen unless either of these conditions exists:

- The fill is turned off. (To see if that is the case, look at the View Menu. When the fill is off, the command in the menu is **Fill On**.)
Turning the fill off causes GEM Artline to display all elements as hollow outlines but greatly speeds the drawing of these elements.
- The gray level of the elements is set to "hollow" or 0% (zero per cent). See the description of the Gray Level tool later in this section.

To set a default fill color, de-select all elements on the drawing surface and then choose a color from the palette. All elements you draw from then on are automatically filled with the color. If you have a color monitor, the default color appears in the Fill Color tool. The default fill color is always black when you start GEM Artline.

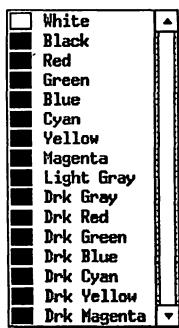
GEM Artline can display palettes with eight or sixteen colors. To select the palette you want, choose the **Preferences** command from the Options Menu. By combining colors and the pre-defined gray levels (described later in this section), you can create eight hues of each of the eight or sixteen colors. By defining gray levels, you can create as many as one hundred hues of each of the colors.

Line Color



The Line Color tool allows you to set the color of any element made of lines or the outline around any filled element. You can change existing line colors or preset the line color for elements you will draw.

As with fill color, you can only see line colors on a color display, but you can still print them on a color printer.



When you click on the Line Color tool, GEM Artline displays a color palette on top of the Toolbox. Clicking on a color in the palette causes the lines in all selected elements to take this color. If you have a color monitor, the line color will still not be visible on the screen if either of these conditions exists:

- The fill is turned off. When the fill is off, all lines appear as thin black lines regardless of their current color or line width.
- The line width is set to zero. See the description of the Line Width scale later in this section.

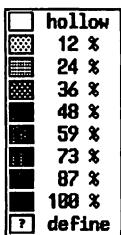
To set a default line color, de-select all elements on the drawing surface and then choose a color from the palette. All lines you draw from then on automatically appear with this color. If you have a color monitor, the default color appears in the Line Color tool. The default line color is always black when you start GEM Artline.

Like the Fill Color palette, the Line Color palette can display eight or sixteen colors. To select which palette you want, choose the **Preferences** command from the Options Menu.

Gray Level



Gray level refers to the color gradations (measured in percentages) that occur as white is added to a color. 100% is pure color—all red, all green, all black, and so on. 50% means the color has been mixed half-and-half with white. 25% means the ratio of the color to white is now one to three. For example, 25% green is one part green to three parts white. Gray level values apply only to the fill in elements, not their outlines.



To set the gray level of selected elements, click on the Gray Level tool. A palette of gray levels pops up on top of the Toolbox. The palette shows eight gray levels displayed by percentages, a setting called "hollow," and a button that allows you to define your own level.

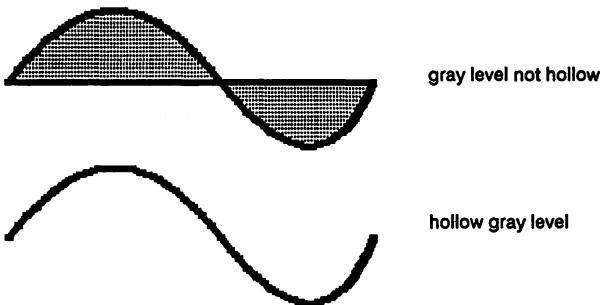
The eight gray level percentages in the palette are represented on the screen and in most printer output as *dither patterns*, patterns of dots or lines that approximate the gray level percentage.

Note that, despite its name, the Gray Level tool does not just affect elements in black and white. You can set a gray level percentage for colored fill too.

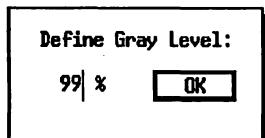
To set a default gray level, de-select everything on the drawing surface, display the gray level palette, and click on the desired gray level value. All elements drawn from this point on will have this preset gray level.

Selecting "hollow" results in a transparent element. There is no fill, and only the element's outline is visible. To draw lines rather than filled figures, set the gray level to hollow.

A hollow gray level changes how GEM Artline treats figures drawn with the Quill tool (described later in this section). When the gray level is anything *but* hollow and you double-click to complete a figure, the first and last points of the figure are automatically connected. When the gray level is hollow, these points are not connected. See the illustration below:



If you want hollow fill and a closed figure, you must place the figure's last point directly on top of its first point.



If you click on the "define" button, GEM Artline displays a dialog in which you can enter a percentage for the gray level. You can produce as many as 1600 hues this way—sixteen colors with 100 gray scale percentages each.

Because most printers and monitors cannot reproduce the full range of gray level percentages, GEM Artline substitutes the nearest approximation from the default set. One instance in which this substitution does not take place is when you are printing to a very high-resolution PostScript® device like a Linotronic® phototypesetter.

A gray level of 0% is the same as a hollow fill. Fill color becomes visible only when a gray level greater than 0% is selected.

Gray levels are not visible on the screen when fill has been turned off. See the description of the Fill Off command in Section 3, "Menus Commands."

When you first start GEM Artline, the default gray level is 100% (black).

Line Width Scale



To set or change the width of straight lines, curves, or the outline around filled elements, use the Line Width scale. The line width can be set to a value between 0 and 20, with the unit of measure 1/300 of an inch.

To change the width of any selected line or the outline of any selected element, drag the knob on the Line Width scale to the desired position. After the line width has changed, the knob springs back to its previous position.

To set a default line width for future elements, de-select all selected elements on the drawing surface and then drag the knob to the position you want. The knob stays in this new position. The initial default line width value is 1.

If fill is turned off, all lines appear in single-pixel width (the same as a line width of 1). When fill is turned on, all lines appear in their true width. See the description of the Fill Off command in the View Menu (Section 3, "Menu Commands").

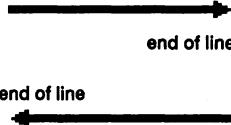
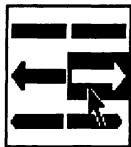
Line End Styles



The lines, polygons, and curves you draw can have any of three end styles: squared, rounded, or an arrow. You can set different styles for the beginning and end of the line so that, for example, the line is rounded on one end and has an arrow at the other end.

To change the line end style for the selected element or elements, click on the Line End Style tool and then click on the desired style in the pop-up menu illustrated below. Note two things about this menu:

- You can only set one end style at a time. As soon as you click on one style, the menu disappears. To set the style for both ends of a line, you must display this menu twice.
- The column of end styles on the left determines the style of the *beginning* of your line or the first vertex of your polygon. The column on the right determines the style of the end of your line or the last vertex of your polygon. In the illustration below, the two lines were drawn in opposite directions, the top line from left to right and the bottom line from right to left.



Quill



With the Quill, you can draw lines, polygons (closed linear figures like squares, trapezoids, and parallelograms), curves, and figures made of combinations of lines and curves.

GEM Artline's *snap* feature allows you to draw freely or with great precision. When snap is off, you can place the figure anywhere you want. When snap is on, the points that define the figure automatically attach to the nearest grid point. (See Section 3 for descriptions of Snap On/Off (Page Menu), Grid Size (Page Menu) and Show Grid (Options Menu).)



When you click on the Quill tool, it is highlighted and the pointer changes to a cross hair. As soon as you click in the work area or begin to drag, the pointer changes to a cross. It remains a cross until you double-click to complete what you're drawing. The pointer then changes back to a cross hair to indicate that you can draw another figure with the Quill.

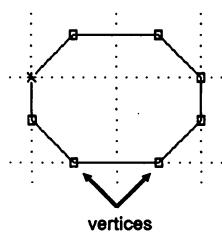


Newly-drawn lines, polygons, or curves appear in the foreground on top of any previously drawn elements. Any previously selected elements are de-selected and the new line, polygon, or curve is selected.

Lines and Polygons



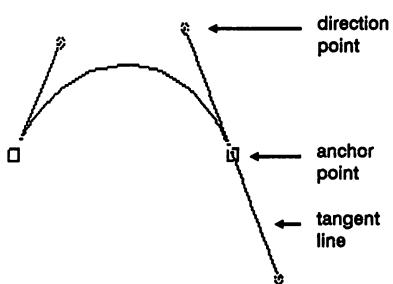
To draw a straight line, click on the line's beginning and end points and then double-click to indicate that the line is finished.



To draw a polygon, click at each vertex to draw the lines that make the polygon. Each time you click the mouse button, the new vertex is connected to the last one by a straight line. To close the polygon, double-click anywhere in the work area.

If fill is turned on when the polygon is closed, GEM Artline connects the last vertex to the first and redraws the polygon with the current fill and line attributes. If the gray level is set to "hollow", the first and last vertices are not connected unless you set the last vertex directly on top of the first.

Curves



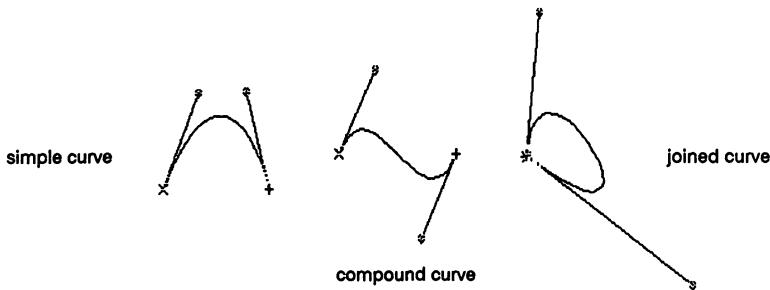
Each curve segment is defined by two **anchor points** and two **tangent lines**. The anchor points mark the beginning and end of the curve, and the tangent lines determine the direction and shape of the curve. At the end of the tangent lines are small circles called **direction points**.

When you are drawing connected curves, the last anchor point of one segment is the first anchor point of the next segment.

To draw a curve:

1. Place the cross hair where you want the first anchor point. Press and hold down the mouse button to set the anchor point.
2. Draw the first tangent line by dragging with the mouse. The curve will follow the direction you are dragging. The longer the tangent line, the "taller" the curve. Release the mouse button.
3. Place the cross where you want the second anchor point. Press and hold down the mouse button.
4. Draw the second tangent line by dragging with the mouse. The curve connects the two anchor points.

If you drag the second tangent line in the opposite direction from the first, you draw a *simple curve* (one that goes in one direction only, like the letter "U"). If you drag the second tangent line in the same direction as the first, you draw a *compound curve* (one that goes in two directions, like the letter "S"). If you place the second anchor point directly on top of the first, you create a *joined curve* (like a loop). The illustration on the next page shows the three kinds of curves with their tangent lines and direction points.



If you have set one anchor point and you *click* (instead of drag) for the second anchor point, the result is a straight line connecting the two anchor points (now end points of the line).

To add a direction point to an anchor point that does not have one, or to move the last direction point (without moving its opposite), press the Alt key and drag to where you want the new direction point.

To delete the current anchor point, press the Backspace key. You can continue deleting anchor points in this manner until you reach the first anchor point. To delete the first anchor point, double-click. Ordinarily double-clicking would close the curve, but since one-point curves (or lines) are not possible, GEM Artline deletes the single anchor point.

When you close a curve, its appearance depends on several factors:

- fill turned on, gray level not hollow The last anchor point is automatically connected to the first and the curve is drawn with the current fill color, line color, gray level, line width, and end styles. See the descriptions of these attributes earlier in this section.
- fill turned on, gray level hollow The first and last anchor points are not connected unless you place the last anchor point on top of the first. The curve appears as a curved line with no fill, but with the current line attributes. See the description of the Gray Level tool earlier in this section.

- **fill turned off**

Regardless of its fill or line attributes, the curve appears as a line that is one pixel wide. First and last anchor points are not automatically connected.

Note: GEM Artline has a limit of 128 points per figure, including anchor points and direction points. With practice, you should be able to draw very complex figures without exceeding this limit. See the *GEM Artline User's Guide* for full information about the 128-point limit.

Re-Opening a Curve or Polygon

After you've closed a curve or polygon, you can re-open it and continue drawing, adding new anchor points or vertices. To re-open either kind of figure, click on the Selector (described later in this section) and then double-click anywhere on the figure. GEM Artline switches you to the Quill and displays the last two anchor points and direction points of the figure.

Rectangle

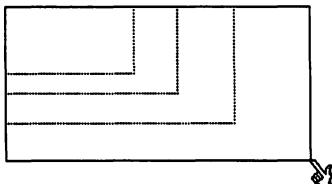


To draw a rectangle, click on the Rectangle tool in the Toolbox and move the pointer into the work area. At this juncture you have two choices:

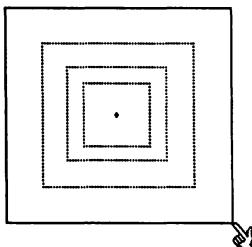
- You can draw the rectangle by dragging from one corner to its diagonally opposite corner. As you drag, a *rubber rectangle* (a rectangle that gets bigger or smaller according to how you move the mouse) previews the rectangle.
- You can draw a rectangle around a center point by holding down the Shift key as you drag. The point where you pressed the mouse button becomes the center point of the rectangle; the point where you release the button marks one of the rectangle's corners.

The illustration below shows the two ways you can draw a rectangle.

rectangle
drawn
from one
corner



rectangle
drawn
around a
center
point



If the snap is on, the corners of the rectangle (and the center point, if you are Shift-dragging) snap to the nearest grid point. See the description of the **Snap On** command in Section 3.

If the fill is turned on, the rectangle appears with all its fill and line attributes. If the fill is turned off, the rectangle appears transparent, with an outline that is one pixel wide.

Ellipse



To draw an ellipse, click on the Ellipse tool in the Toolbox and move the pointer into the work area. As with rectangles, you have two choices:

- You can draw the ellipse by dragging from one corner of an imaginary rectangle to the diagonally opposite corner. As you drag, GEM Artline shows a "preview" of the ellipse's size and shape.
- You can draw the ellipse around a center point by holding down the Shift key as you drag. The point where you pressed the mouse button becomes the center point of the ellipse; the point where you release the button marks one of the enclosing rectangle's corners.

If the snap is on, the corners of the enclosing rectangle (and the center point of the ellipse, if you are Shift-dragging) snap to the nearest grid point. See the description of the Snap On command in Section 3.

If the fill is turned on, the ellipse appears with all its fill and line attributes. If the fill is turned off, the ellipse appears transparent, with an outline that is one pixel wide.

Text



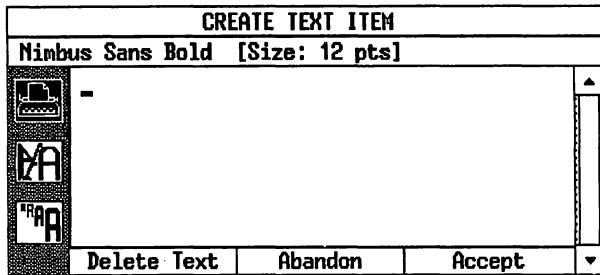
When you select the Text tool and click in the work area, GEM Artline displays a pop-up window for you to enter your text. Once the text is entered, you have two choices:

- You can continue to treat the text as text—that is, you can edit it or change its point size, fill pattern, or color.
- You can treat the text as a graphics element, just like a circle, square, or curve. When the text is a graphics element, you can manipulate individual characters or the entire string. For example, you can rotate the text, skew it, flip it, or stretch it vertically or horizontally.

Treating text as a graphics element makes it possible for you to create logos or other text-based designs, but you can no longer treat it as text—for example, you cannot edit the content of the text.

To add text to your artwork:

1. Click on the Text tool in the Toolbox.
2. Move the pointer to the place on the drawing surface where you want to text to begin and click. GEM Artline displays the CREATE TEXT ITEM window shown on the next page. Note that the Typewriter icon is highlighted, which indicates that you can enter new text.



3. Enter your text into the CREATE TEXT ITEM window. "Entering Text—the Typewriter," which follows on the next page, describes the Typewriter in detail.
4. Use the Font Selector to choose the font (typeface) for your text. The Font Selector is described after the Typewriter.
5. Use the Font Attribute tool to set the point size for your text, the leading and character spacing, and to turn kerning on or off. The Font Attribute tool and the terms just used are described after the Font Selector.

There are three buttons at the bottom of the dialog:

- **Delete Text:** Clicking on this button deletes all text in the window. (The Delete button is active only when the Typewriter is highlighted.)
- **Abandon:** Clicking on this button abandons the current text (Typewriter), font (Font Selector), or font attributes. If you click on Abandon while the Typewriter is highlighted, the window is closed and any text in the window does *not* appear on the drawing surface.
- **Accept:** Clicking on this button when the Font Selector or Font Attribute tool is highlighted indicates that you have the font or attributes you want. You return to the Typewriter.

Clicking on the Accept button when the Typewriter is highlighted closes the window. The text in the window appears on the drawing surface with the font and attributes you selected.

The first character of the text "sits" on the point where you clicked to open the CREATE TEXT ITEM window, as the illustration below shows.



Entering Text—the Typewriter



When the Typewriter in the CREATE TEXT ITEM window is highlighted, you can enter up to 240 characters of new text. If you type past the end of a line (a line can hold forty characters), the text automatically wraps to the next line. On the drawing surface, however, the text appears as a single line with no line breaks. To insert a line break in your text, press the Enter key.

You can use the following keys when entering text with the Typewriter:

- *Arrows*: Move the text cursor. Use the up-, down-, left-, or right-arrow key to move the text cursor up, down, left, or right.
- *Enter*: Inserts a line break in your text. The next character will appear at the left margin one line below the previous line.
- *Insert*: Switches between insert and overwrite modes. In insert mode the text cursor is an underline, and in overwrite mode it is a block. By default, the Typewriter is in insert mode.
- *Delete*: Deletes the character under the cursor and closes up any following spaces.
- *Backspace*: Deletes the character to the left of the cursor and closes up any following spaces.
- *Home*: Moves the cursor to the beginning of the line.
- *End*: Moves the cursor to the end of the line.



Choosing a Font—the Font Selector

When you click on the font selector, the names of the available GEM Artline fonts are displayed in the CREATE TEXT ITEM window. Only six font names can be displayed at one time. If more than six fonts are available, you can scroll the window to bring a font name into view. The name of the currently selected font is highlighted when it is in the Font Selector window and also appears in a line at the top of the window.

GEM Artline uses font files with the extension .AFF. The GEM Artline installation program copies a set of fonts to the \GEMAPPS\FONTS folder, and by default the CREATE TEXT ITEM window lists the fonts contained in this folder.

You can keep your GEM Artline fonts in a folder other than \GEMAPPS\FONTS. To tell GEM Artline where the fonts are located:

1. Display the Options Menu and choose the Preferences command.
2. In the Preferences dialog, click on the Font Path button. The ITEM SELECTOR is displayed.
3. Change the directory path in the ITEM SELECTOR (see Appendix A if you don't know how to do this) until it lists your GEM Artline font files. Click on the ITEM SELECTOR's OK button. You can now access the fonts in the specified folder.
4. To make this directory path the default for your GEM Artline fonts, display the Page Menu and choose the Save Preferences command. **Save Preferences** saves more than just the font path. See the description of the command in Section 3 to learn what is saved when you choose this command.

Selecting Font Attributes

When you click on the Font Attribute tool, the CREATE TEXT ITEM window shows fields or buttons for these font attributes:



Size To set the text's point size, press the Esc key to clear this field and then type the size you want. In traditional typography, 72 points equals one inch.

Leading Leading (pronounced "ledding") is the space between lines. The default setting of 100% produces single-spaced text with—in traditional typographical terms—zero points of lead. This means that the *descenders* of letters on one line just touch the *ascenders* of letters on the line below. See the illustration below.



Values greater than 100% increase the space between lines, and values less than 100% cause the lines to overlap each other.

Spacing	The spacing percentage determines the amount of space between the individual characters of <i>the entire text string</i> . A 100% Spacing value represents the normal spacing between characters for the current font and point size. Values greater than 100% increase the space between characters, and values less than 100% cause the characters to move progressively closer together.
Kerning	Kerning is a spacing attribute that works on specific pairs of characters that would otherwise appear to be farther apart than other characters in the same font. For example, compare "VALVE" without kerning to "VALVE" with kerning.

When you've selected the attributes you want, click on the Accept button at the bottom of the window. To leave the settings unchanged, click on Abandon. In either case, you return to the Typewriter.

Editing Existing Text

You can edit existing text—change the content or the point size, select a new font, modify the leading or spacing, and so on—as long as you haven't done anything that changes the text to a graphics element. Text is changed to a graphics element if you ungroup, rotate, enlarge, scale, flip, or skew it.

To edit text, click on the Selector, select the text, and then double-click on it. GEM Artline displays the EDIT TEXT ITEM window, which is identical to the CREATE TEXT ITEM window. Make your edits and then click on the Accept button.

Generating Fonts

To generate new fonts, use the Fontware™ Installation Kit provided with GEM Artline. Regardless of what kind of printer you have, change your control panel so that you are making fonts for a PostScript® device. (The .AFF fonts are automatically created when you make PostScript fonts. Changing the Fontware control panel only determines what kind of fonts you create; it has no effect on the output device listed in your GEM/3 system setup. In other words, you can still print to your printer; that hasn't changed.)

If you're keeping your .AFF fonts in a folder other than \GEMAPPS\FONTS, you can change the destination folder in the control panel (the folder name listed after "For GEM fonts") to this other folder.

If you've specified a PostScript device and named the folder for your fonts, the .AFF fonts will be ready for use with GEM Artline as soon as you exit Fontware. If you do not actually have a PostScript device, you can save disk space by deleting all files with the extension .PFA, .PFI, and .AFM from the font folder.

You can also generate .AFF font files from any PostScript ASCII fonts using a utility called BLDAFF.EXE, which is included with Fontware. Here are the steps:

1. Change to the directory that has the PostScript ASCII font files.
2. Type this command:

C:\GEMAPPS\FONTWARE\BLDAFF PFAFILE

where **PFAFILE** is the filename of the PostScript ASCII file you want to convert. For example, if you have a file called ABC.PFA, a GEM Artline font file called ABC.AFF will be created.

Symbols



Symbols are pictures that have been saved in a special file and that you can add to your GEM Artline work over and over. Symbol files are like a ready-made library of pictures, and the individual symbols can be anything from a fragment of a picture to an entire picture.

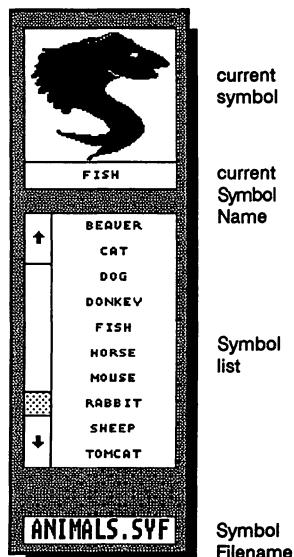
Loading Symbols

Before you can use symbols, you must *load* a symbol file. (Symbol files have the extension .SYF.) If no symbol file has been loaded, the Symbol tool is dimmed.

To load a symbol file you will use in your current work session, display the Symbols Menu and choose the **Load Symbols** command. GEM Artline displays the ITEM SELECTOR so you can choose the symbol file you want.

To set a default symbol file that will automatically be loaded *the next time you start GEM Artline*, display the Options Menu and choose the **Preferences** command. Click on the Default Symbols button in the Preferences dialog. GEM Artline displays the ITEM SELECTOR. Choose the name of the symbol file you want and exit the ITEM SELECTOR. Finally, display the Page Menu and choose the **Save Preferences** command. (**Save Preferences** does more than just save a default symbol file. See the description of the **Save Preferences** command in Section 3.)

Selecting Symbols



When a symbol file is loaded, the Symbol Selector appears on the right side of the screen. To select a symbol, click on its name in the Symbol Selector. The symbol you have chosen appears at the top of the Symbol Selector with its name underneath.

The Symbol Selector can display ten names at once. If the file contains more than ten symbols, you can bring a name into view by clicking on the arrows, dragging the slider, or clicking in the scroll bar.

To draw the symbol you have selected, click on the Symbol tool and then move the pointer to the work area. Drag a rectangle where you want the symbol to appear. When you release the mouse button, GEM Artline draws the symbol into the area defined by the rectangle.

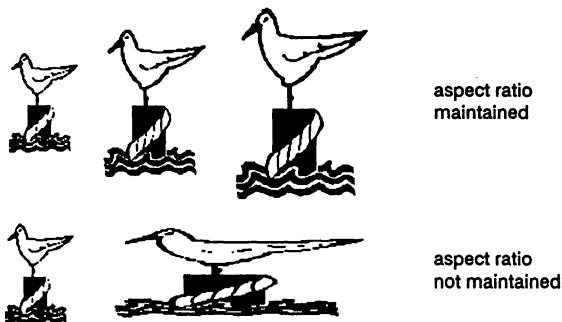
If the snap is on, the corners of the rectangle (and the center point, if you are Shift-dragging) snap to the nearest grid point.

Once a symbol is on the drawing surface, you can treat it just like any other picture element—moving, copying, grouping or ungrouping, rotating, and so on.

Making Symbols

You can make any picture element on the drawing surface into a symbol by selecting it and then choosing the **Make Symbol** command from the **Symbols Menu**. GEM Artline displays the **Make Symbol** dialog. Use this dialog to give the symbol a name and to tell GEM Artline whether to maintain *aspect ratio* when drawing the symbol.

Aspect ratio is the relationship of the symbol's height to its width. If you maintain aspect ratio, the symbol always appears with the same height/width ratio as the original, whatever its size; the symbol is not distorted. If you don't maintain aspect ratio, you can drag a rectangle of any height/width ratio and GEM Artline will fit the symbol to the rectangle. In this case, you can distort the symbol, as shown below.

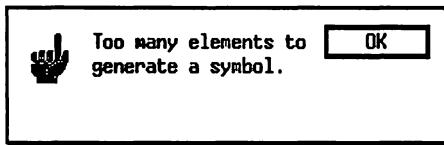


Here are three things to remember about symbols:

- To use something as a symbol, you needn't have a symbol file loaded. You can use the symbol as much as you need in the current drawing and then discard it by choosing the **Delete Symbol** command.
- You can add a symbol to an existing symbol file. In effect, what you do is "un-make" it as a symbol by itself and "re-make" it as a symbol that belongs to the file you select. Here's what you do:

First, choose the **Load Symbols** command. An alert tells you that your current symbol file will not be saved. Click on the alert's **Abandon** button. (Note that the **Symbol** tool is grayed out. The symbol has been "un-made.") When GEM Artline displays the **ITEM SELECTOR**, select the file to which you want to add your symbol. Now click on the **Selector** tool and select the symbol. Finally, choose the **Make Symbol** command and name the symbol again. This time it will become part of the loaded symbol file.

- Each symbol can be no larger than 16K bytes. If you try to make a symbol that is larger, GEM Artline displays this alert:



Hiding the Symbol Selector

The Symbol Selector takes up a certain amount of space at the right side of the work area. If you want that space to be available for drawing, choose the **Hide Symbols** command from the Options Menu. Although the Symbol Selector is no longer visible, you can still draw the current symbol (the one that was in the Symbol Selector when you chose the **Hide Symbols** command).

To re-display the Symbol Selector, display the Options Menu. Note that the command name has changed to **Show Symbols**. When you choose this command, the Symbol Selector again appears on the screen.

Saving and Removing Symbols

To save changes to a loaded symbol file, display the Symbols Menu and choose the **Save Symbols** command.

To name and save a new symbol file, choose the **Save Symbols As** command. GEM Artline displays the ITEM SELECTOR so you can name the file. You can also use this command to save the symbol file under a new name—if, for example, you've changed one or more of the symbols in the file, and you want to save the changed symbols *and* the original version. In that case, choose the **Save Symbols As** command and enter the name of the modified symbol file in the ITEM SELECTOR.

To remove (“unload”) the current symbol file, display the Symbols Menu and choose the **Remove Symbols** command. Removing the symbol file makes additional system memory available. The Symbol Selector is no longer displayed, and you cannot draw symbols until you load another symbol file.

Selector



Using the Selector tool, you can select or de-select elements. Selecting an element is the first step in moving, copying, sizing, or any of the other manipulations possible in GEM Artline. You can also use the Selector to re-open curves or polygons, as described earlier in this section.

Selecting and De-selecting Elements

There are four ways to select elements:

- **Clicking.** To select a single element, click on it. GEM Artline surrounds the element with a *frame*, a rectangle with small squares (called *handles*) at the corners and in the middle of each side.
All previously selected elements are de-selected.
- **Dragging.** To select a group of elements, drag a rubber rectangle around them. When you release the mouse button, all elements enclosed by the rubber rectangle are selected.
All previously selected elements are de-selected.
- **Shift-clicking.** If a rubber rectangle would select elements you don't want, click on the first element you want to select and then hold down the Shift key as you click on each additional element.
- **The Select All command in the Edit Menu.** This command selects everything on the drawing surface. If you are working in a view that doesn't show the entire drawing surface, remember that this command will select elements that are not currently visible in the work area.

To de-select all currently selected elements, click anywhere in an empty part of the work area. To de-select individual elements from a number of selected elements, Shift-click on the elements.

Layers

You might have several elements where the smallest one is entirely enclosed within the next larger one, which is enclosed within the next larger one, and so on. In that case, it is helpful to think of the elements as existing in "layers" on the drawing surface. The most recently drawn element is always *on top*.

To select an element underneath and entirely inside another element, you cannot simply click on it. You'll always select the element on top. Instead, you have these options:

- You can press the Ctrl key and click on the element underneath. The pointer must be on top of the element you want to select.

Once the bottom element is selected, you can "step-select" through the element layers by pressing the F4 key until you reach the top layer.

- You can select the element on top and then press F4 to step-select to the bottom layer.

Here are the rules for the F4 key in a nutshell: If you start on the bottom layer, F4 takes you to the top; if you start on the top layer, F4 takes you to the bottom.

- You can select the element on top and then move it to the background. To do so, display the Arrange Menu and choose the Put in Back command. Note, however, that moving an element to the background will very likely change the appearance of your drawing.
- You can select a group of elements starting from the bottom layer. To do so, Ctrl-click on the bottom element, and then hold down the Shift key as you press F4 to select each additional element.

Moving and Copying Elements

To move one or more selected elements, you can use the mouse or the Edit Menu.

- To move elements with the mouse, first move the pointer inside the frame of one of the elements. Press the mouse button and drag. Note that the pointer changes to a flat hand. As you move the hand, the frames move with it, indicating where the elements will be placed. When you release the button, the screen is redrawn with the elements in the new position, still selected.
- You can also move elements by choosing the **Move** command from the Edit Menu. The **Move** command is described in Section 3.

To copy elements, you can also use the mouse or the Edit Menu.

- To copy selected elements with the mouse, hold the Shift key down while you drag. Instead of moving the original elements, GEM Artline copies them to the new position. The original elements are de-selected and the copies are selected.
- You can also copy elements by choosing the **Copy** command from the Edit Menu or by using its keystroke equivalent Alt-C. The **Copy** command is described in Section 3.

If the snap is on, the moved or copied elements are snapped to the nearest grid point.



Sizing Elements

To size an element, select it and then drag one of the handles. If you drag a corner handle, you can size the element in two directions—for example, up and to the left. If you drag one of the midpoint handles, you can size only in one direction—for example, up *or* to the left, but not both.

As you drag, a rubber rectangle shows you the new size of the element.

When you size an element, the pointer does not change form; it remains an arrow. If it changes to a flat hand when you press the mouse button, the pointer is in position for moving, not scaling. Release the mouse button, move the pointer closer to a handle, and press the button again.

You can also size elements using the **Scale** command in the Edit Menu. The **Scale** command is described in Section 3.

Magnifier



The Magnifier allows you to change how much of the drawing surface is visible in the work area. The entire drawing surface can be visible, or you can zoom in to a variety of closeup views.

When you click on the Magnifier tool, the pointer changes to a magnifying glass.

To display the entire drawing surface in the work area ("full view"), click on the Magnifier tool and then double-click anywhere on the drawing surface. GEM Artline switches you to full view, where the entire width of the page is visible in the work area. (On some screens, depending on their aspect ratio, you might not see the full height of the drawing surface. If a scroll bar is visible on either side of the vertical slider, you're not seeing the full height.)

To zoom in on a particular point on the drawing surface, place the magnifying glass over that point and drag. As you drag, a rubber rectangle

appears, centered on the point where you pressed the button. This rectangle shows you the portion of the drawing surface that will be visible in the work area when you release the button.

Note that, as you drag, the rectangle seems to jump from one size to the next larger size. This occurs because view levels exist only in fixed percentages, like 25%, 50%, 100%, 200%, and so on.

To move back one zoom level—for example, from 100% to 50%—click anywhere on the drawing surface.

There are two more ways to change the view:

- You can zoom in or out one magnification level using the plus (+) key or minus (-) key on the numeric keypad. Use the plus key to zoom in and the minus key to zoom out. The part of the drawing surface that is in the upper left corner of the work area remains there as you zoom in or out with these keys.
- You can use the **Full View**, **Normal View**, and **Reduced View** commands in the View Menu. These commands are described in Section 3.

Rotator



The Rotator allows you to rotate one or more selected elements around a center point. When you click on the Rotator tool, the pointer changes to one of two forms:

thumbtack



If there is no center of rotation marked on the drawing surface.

upward-pointing arrow



If there is already a center of rotation marked on the drawing surface.

Before you can rotate anything, you must determine the center of rotation. Click on the Rotator tool, move the thumbtack to where you want the center of rotation, and click to set the thumbtack. When the center of rotation is set, the pointer changes to the up-arrow.

To rotate the selected element, drag with the up-arrow. As you move the arrow, the frame rotates with it, indicating where the element will be placed. At the same time, the angle of rotation is displayed in the View Box at the bottom of the Toolbox. When you release the button, the screen is redrawn with the element in the new position, still selected.

If the element you want to rotate is not selected, you can select it without leaving the Rotator by holding down the Alt key and clicking. You can select additional elements (or de-select individual elements of a group) by holding down the Alt and Shift keys together. You can also move selected elements by dragging with the Alt and Shift keys held down.

The Rotator allows you to make rotated copies of one or more selected elements. To do so, hold the Shift key down as you drag. Instead of moving the original elements, copies appear in the rotated position. The original elements are de-selected and the copies are selected.

You can also copy elements using the **Rotate** command in the **Edit** Menu. This command is described in Section 3.

Note: Once placed on the drawing surface, the thumbtack stays there, although it is not visible when other tools are selected. To "pick up" the thumbtack, select the Rotator tool and then Ctrl-click on the thumbtack. When the thumbtack is no longer attached to the drawing surface, you have two options:

- You can place the thumbtack on another part of the drawing surface by clicking there.
- You can remove the thumbtack from the drawing surface entirely by selecting another tool.

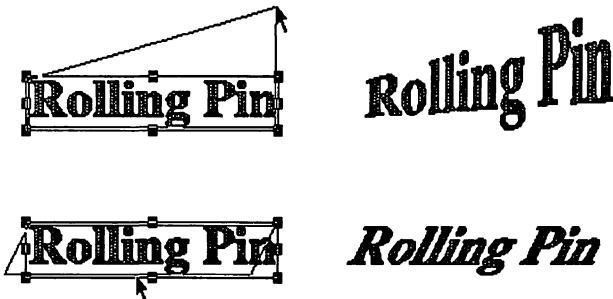
Rolling Pin



Click on the Rolling Pin when you want to *skew* an element, deliberately distorting it from its original shape. To skew an element, you drag one of its handles. The effect depends on which handle you drag.

- If you drag one of the corner handles, you can skew in two directions at once—for example, up and to the left or down and to the right. The other corner handles remain fixed, but you can drag this handle anywhere within the work area.
- If you drag one of the midpoint handles, that side moves along its current plane, but the opposite side remains fixed.

The illustration below shows the effects of dragging the corner handle and the midpoint handle.



If the snap is on, the handle you're dragging snaps to the nearest grid point.

You can select elements while the Rolling Pin is highlighted, by clicking to select a single element and Shift-clicking to select additional elements.

Plane



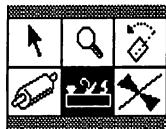
The Plane tool allows you to change the shape of curves and polygons. Using the Plane, you can select and move anchor points, vertices, or direction points.

Note: You can use the Plane to manipulate the vertices of polygons or the anchor points of curves. For simplicity's sake we'll refer to both as "points" unless the difference between the two is significant.

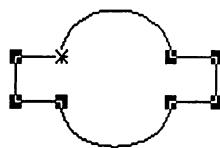
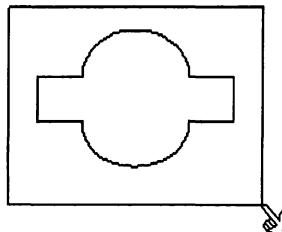
When you click on the Plane, the fill is automatically turned off (as if you had chosen the Fill Off command). This gives you an unobstructed view of the curves, lines, and points with which you will be working.

The first step in using the Plane is to select one or more points on the figure.

- To select a single point, click on it.
- Clicking on a single point requires considerable accuracy. If you're not exactly sure where the point is, drag a rubber rectangle around the area where you think it's located. GEM Artline selects all points within this rectangle. You can also use this technique to select more than one point.



When you drag a rectangle around a figure...



...GEM Artline selects all anchor points and vertices inside the rectangle.

If the rubber rectangle selected points you don't want, you can deselect the unwanted points by Shift-clicking on them.

- To select *all* points on a figure, hold down the Alt key as you click anywhere on the figure.
- When you have selected a single point, you can use the left-arrow or right-arrow to select the point before or after the current one. By continuing to press the left-arrow or right-arrow, you can “walk the points” to the first or last point of the figure.
- To select more than one point whose location you know, Shift-click on each point.

The first point of any figure is marked by a small x; the last point is marked by a plus (+). If the first and last points are on top of each other, they appear as a star. The star indicates that you have selected two points at once. To select the first or last point, but not both, Shift-click on the star until you have the point you want.

Note: You cannot use the Plane to select points on elements in groups. You must first ungroup the elements using the **Ungroup** command in the Edit Menu.

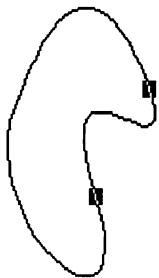
When you drag a point, all currently selected points move with the one you’re dragging, and the shape of the figure changes according to where you’ve moved the point (or points).

If you select a single anchor point on a curve, GEM Artline displays its tangent line and direction points. You can drag the direction points to change the size and shape of the curve. When you drag one direction point, the opposite direction point automatically moves with it. If you hold down the Alt key while you drag, that direction point moves independently of the other direction point, and you break the tangent line into separate tangent lines. You can use this technique to change the size and shape of the portion of the curve approaching the anchor point from the side on which you’re dragging, without affecting the other side of the curve.

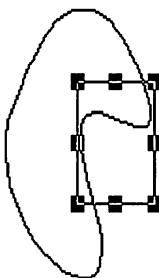
If you have selected a single point, you can use the **Cut** command in the Arrange Menu to split a connected curve into separate curves or to break a polygon into its component lines.

The **Join** command (also in the **Arrange** Menu) has the opposite effect. It allows you to form a single element by joining the selected beginning or end points of two curves, lines, or polygons. When you choose the **Join** command, the selected point *on the figure in the background* is actually moved to the selected point on the figure in front. Thus, unless the two points were on top of each other to start with, joining them will change the shape of the background figure. (Joining figures can cause you to encounter GEM Artline's 128-point limit. See the discussion of this limit under "Curves" earlier in this section.)

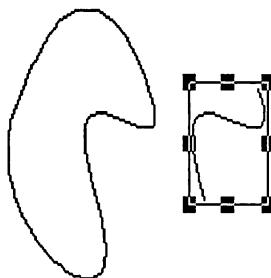
You can also use the **Plane** to copy portions of a curve or polygon. When you have selected the points that define the portion of the curve you want to copy, display the **Edit** Menu and choose the **Copy** command. Then click on the **Selector** and click on the portion you copied. A frame appears around the copied curve, and you can drag it to another part of the drawing surface or treat it like any other curve.



Use the **Plane** to select the anchor points of the curve you want to copy.



Choose the **Copy** command to copy the curve segment.

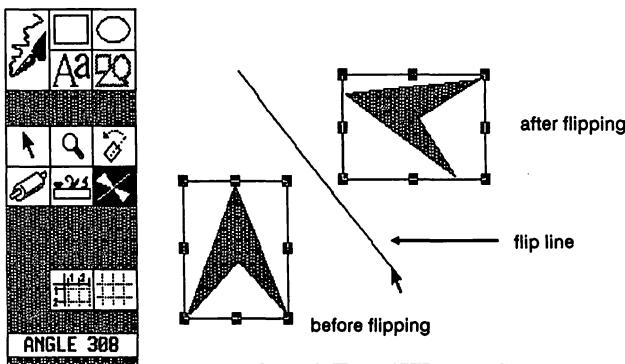


Select the copied curve segment and drag it to another part of the drawing surface.

Flipper



By *flipping* the currently selected element (or elements), you can move or copy it from its current position to a "mirror image" position, where you control the placement and angle of the mirror. The illustration below shows a simple element being flipped.



To flip an element, click on the Flipper tool and then drag a *flip line*. As you drag the flip line, the flip angle is displayed in the View Box at the bottom of the Toolbox. When you release the mouse button, all selected elements are flipped across the line.

If you hold down the Shift key as you drag the flip line, the element is copied over the line.

While the Flipper is highlighted, you can select elements by holding down the Alt key as you click. If you hold down both the Alt key and the Shift key, you can select additional elements, and you can de-select individual elements from among a number of selected elements.

If you don't like where you've drawn the flip line or decide not to flip the element after all, you can abandon the flip. To do so, make the flip line as short as you can and then release the mouse button. When GEM Artline displays an alert telling you the minimum required length for a flip line, click on the alert's OK button. You can then draw a new flip line or go on to something else.

You can also flip elements with the **Flip** command in the **Edit** Menu. The **Flip** command is described in Section 3.

Rulers



Clicking on the Rulers tool turns the rulers on and off. The rulers appear across the top and down the left side of the work area; they use the units selected in the Preferences dialog (**Preferences** command in the Options Menu).

You can also turn the rulers off and on with the **Hide Rulers** and **Show Rulers** commands in the Options Menu.

Double-clicking on the Rulers tool is a shortcut method of displaying the Page Layout dialog. See the description of the **Page Layout** command in Section 3.

Grid



Clicking on the Grid tool turns the grid on or off. The grid is an array of dots displayed on the drawing surface. When the snap is on, anchor points, vertices, and other points snap to the nearest grid point. The combination of snap and grid makes precise alignment of elements very easy.

You can also turn the grid off and on with the **Hide Grid** and **Show Grid** commands in the Options Menu.

Note: The presence or absence of the grid has nothing to do with whether the snap is on or off. The status of the snap is revealed by the command in the Page Menu. The command is always the *opposite* of the snap's current state. If the command is **Snap Off**, the snap is on; if the command is **Snap On**, the snap is off.

The grid size (the space between dots) is set in the Grid Size dialog. To display the Grid Size dialog, choose the **Grid Size** command from the Page Menu or double-click on the Grid tool. See the description of the **Grid Size** command in Section 3.

View Box



Except when you're using the Flipper or the Rotator, the View Box gives a percentage value that describes the current view of the drawing surface. A value of 100% indicates that the view shows exactly how your file will appear if printed on a 300dpi printer. A value greater than 100% indicates that you have zoomed in on the drawing surface; a value less than 100% indicates that you have zoomed out.

When you're using the Flipper or the Rotator, the View Box gives the angle of the flip or rotation. See the illustration on page 2-31.

Menu Commands

This section describes the commands in GEM Artline's menus. To display a menu, move the pointer to the menu bar. If you have set your GEM Desktop preferences for menu display to "No click," the menu automatically drops down when the pointer touches its name. If you've set the preferences to "Click," you must click on the menu name. To choose a command, move the pointer through the menu until the command name is highlighted, and then click the mouse.

If a command is "grayed-out" (dimmed), it is *Unavailable* and cannot be selected. A command becomes unavailable when choosing it is not possible or meaningful. For example, the Delete command in the Edit Menu is unavailable when no elements are selected because there is nothing to delete.

The GEM Artline menus are shown on the next page.

Keyboard Command Equivalents

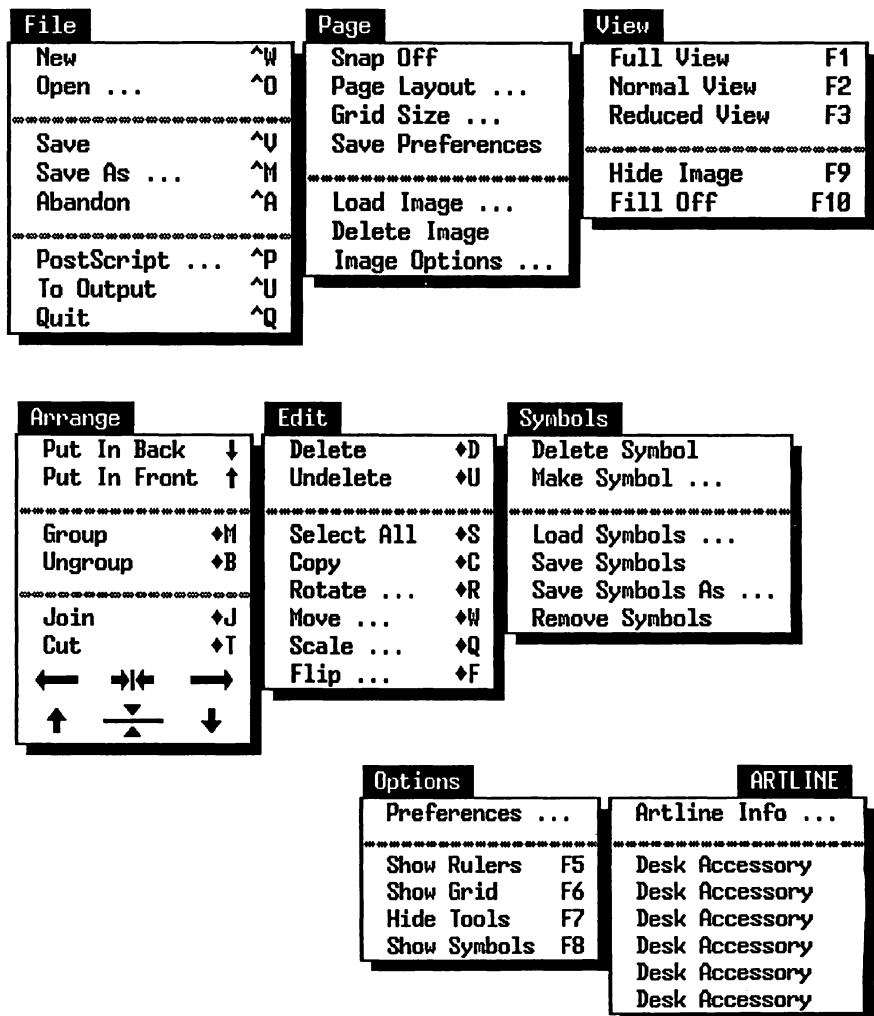
GEM Artline offers you a shortcut way of choosing many of its commands. You can press a combination of keys instead of using the mouse. For example, the keyboard equivalent of the New command is Ctrl-W; the equivalent of the Join command is Alt-J.

The equivalents are listed in the menus, using this notation:

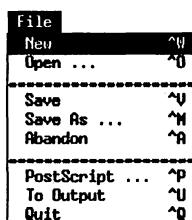
- A caret (^) represents the Ctrl key.
- A diamond (♦) represents the Alt key.

If a command is not available, its keyboard equivalent has no effect either.

Menu Commands

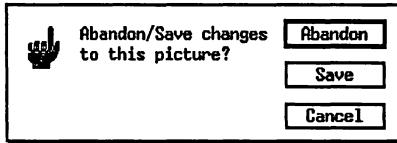


File Menu



New

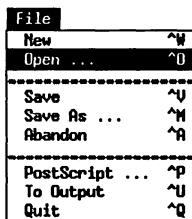
The New command clears the drawing surface so you can start a new picture. If, when you choose this command, there is a picture on the drawing surface that contains changes you haven't saved, GEM Artline displays this alert:



The exit buttons give you three choices:

Abandon	GEM Artline discards any unsaved changes to the current picture and acts on the command you've chosen. In this case, GEM Artline clears the drawing surface.
Save	GEM Artline saves the picture under its current name or, if it hasn't yet been saved, displays the ITEM SELECTOR so you can name and save the picture. The drawing surface is then cleared.
Cancel	Cancels the New command and returns you to the current picture.

If one of the tools in the Toolbox is highlighted when you choose the New command, that tool remains highlighted after the screen is cleared.



Open

When you choose the Open command, GEM Artline displays the ITEM SELECTOR so you can select a file to open onto the drawing surface. The default directory in the ITEM SELECTOR is C:\GEMAPPS\ARTWORK. To open a file from another folder, click on the ITEM SELECTOR's close box or on a folder name in the directory window. (Using the ITEM SELECTOR is described in detail in Appendix A.)

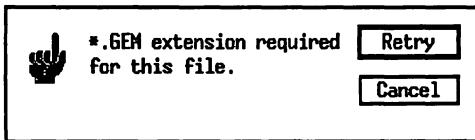
To select a file, double-click on its name in the directory window (the fastest method), or type the name into the Selection line and then click on the OK button.

If there is a current picture that contains unsaved changes, GEM Artline displays the "Abandon/Save" alert described previously.

If you change the directory path in the ITEM SELECTOR and then choose the Save Preferences command from the Page Menu, the default directory in the ITEM SELECTOR is changed to the new directory. The next time you start GEM Artline and choose the Open command, the directory window will list the .GEM files in this new default folder.

A number of requirements or restrictions apply to opening files:

- Files must have the .GEM extension. If you try to open a file with an extension other than .GEM, GEM Artline displays this alert:

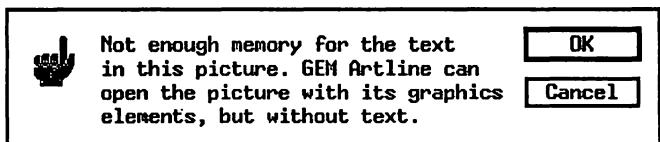


If you click on the Retry button, GEM Artline re-displays the ITEM SELECTOR so you can choose another file. If you click on the Cancel button, GEM Artline disregards the Open and returns you to the current picture file.

- Files must be created with applications that produce .GEM-format files—applications like GEM Draw Plus, GEM Graph, or GEM Word-Chart.

Note: GEM Scan and GEM Paint also produce .GEM files, but you cannot open these files in GEM Artline. These .GEM files are strictly for use with the GEM Output program. GEM Scan and GEM Paint create *image files* (with the .IMG extension) that you can use for tracing. See the descriptions of the image file commands in the Page Menu.

- GEM Artline treats text as graphics elements, with each character taking up a certain amount of memory. As a result, the file you're opening can't contain more text than will fit in memory. Files containing 300 characters or less should not cause any problem. If there is not enough main memory to load all the text, GEM Artline displays this alert:

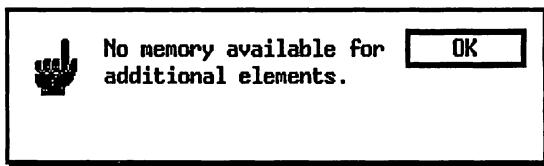


If you click on OK, GEM Artline discards all text in the file, including any text that has already been read in. Only the graphics elements in the file appear on the drawing surface. If you click on Cancel, the Open command is canceled, and you return to the drawing surface as it was when you chose the command.

Note: If you have a low-resolution or medium-resolution monitor, avoid using a type size smaller than 10 points in your pictures. The quality of the outline fonts falls off with very small text.

It's possible for a picture to contain more elements than can be loaded into your computer's memory (RAM). Factors that contribute to a lack of available memory include a system configuration with only 512 Kb of main memory, the presence of memory-resident programs in the system,

or a loaded symbol file if the computer has no expanded memory. If there is not enough memory to load all graphic elements, GEM Artline displays this alert:

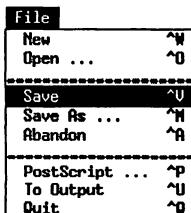


When you click on the OK button, GEM Artline displays as much of the file as it has been able to read into memory.

While a file is being opened, the pointer takes the form of an hourglass to indicate that the process might take a few moments. How much time it takes to open a file depends on:

- the complexity of the picture
- your computer's speed
- GEM Artline's current quality/speed setting. (See the Preferences command in the Options Menu.)

Save

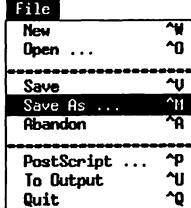


This command saves the current picture, using the name that appears in the title bar. You should save your work at regular intervals to protect against a power failure or other unexpected occurrence.

If the **Keep Backup Files** option in the Preferences dialog is turned off, GEM Artline overwrites the original file when saving the picture. If the backup file option is turned on, the old file is renamed with the .BAK extension before the new file is written. See the description of the Preferences command in the Options Menu.

Note: You can open backup files in GEM Artline after renaming them so that they have the .GEM extension. See the *GEM/3 Desktop User's Guide* or your operating system manual for information on how to rename files.

Save As

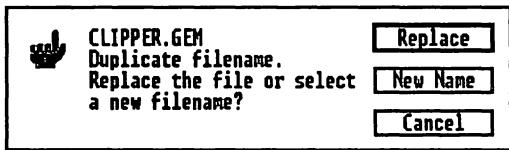


Use the **Save As** command to name and save a new picture for the first time, to save an existing picture under a new name (if you want to keep both the original and the edited version), or to save a picture to another folder or disk.

When you choose the **Save As** command, the ITEM SELECTOR appears. To name and save a picture for the first time, type the name in the Selection line and then click on the ITEM SELECTOR's OK button. You needn't type the .GEM extension; GEM Artline supplies it automatically.

By default, GEM Artline saves files to the C:\GEMAPPS\ARTWORK folder. You can change the folder to which you save the picture, and you can change the default by saving the picture to a new directory and then choosing the **Save Preferences** command from the Page Menu. (See the description of the **Save Preferences** command later in this section. Appendix A describes changing the path in the ITEM SELECTOR in greater detail.)

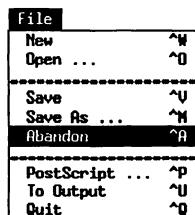
If you enter the name of an existing file into the ITEM SELECTOR, this alert is displayed:



You have three choices:

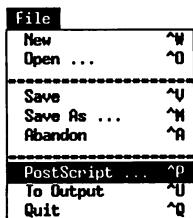
- If you click on Replace, the picture is saved with the name currently showing in the title bar. (If the Keep Backup Files option in the Preferences dialog is on, the old version of the file is also saved, but is renamed with the .BAK extension. If the backup files option is off, the old version of the file is overwritten.)
- If you click on New Name, GEM Artline redisplays the ITEM SELECTOR dialog so you can choose a new name.
- If you click on Cancel, GEM Artline disregards the Save As command and returns you to the unsaved picture on the drawing surface.

Abandon



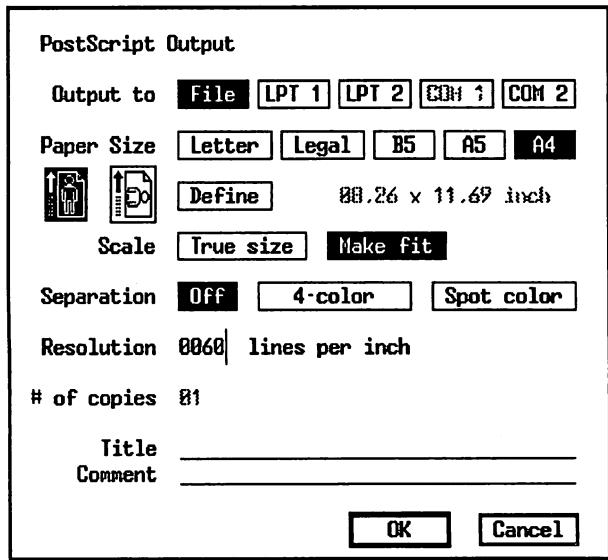
This command discards all changes you've made to the current picture file and redisplays the picture as it was the last time you saved it.

When you choose the Abandon command, GEM Artline displays the "Abandon/Save" alert described previously.



PostScript

This command displays a dialog so you can output your picture file on a PostScript device. The dialog contains these options:



Output to Determines where the PostScript output goes. If you click on File, GEM Artline displays the ITEM SELECTOR so you can name the file. The file is in *encapsulated PostScript* format and uses the .EPS extension. You can output this file on any device that reads the *encapsulated PostScript* format.

The other buttons direct the output to devices connected to your computer. For example, if the PostScript device

is connected to serial communication port number two, click on the COM2 button. Note that if you have a mouse connected to one of your serial ports, that port's button is disabled (grayed out).

Paper Size	Allows you to choose one of several standard page sizes or to define a special page size. If you click on the Define button, you can edit the fields that follow the button. To clear a field, press the Esc key. To move the cursor to the next field, press the Tab key. To move the cursor to the previous field, hold down the Shift key as you press the Tab key. Note that, to enter a value less than 10, you must enter a zero first. GEM Artline reads 06 as 6, but reads 6 as 60. The Portrait and Landscape icons are for wide-carriage PostScript printers. They tell the printer how you are inserting the paper. If you're inserting the paper vertically (in Portrait orientation), click on the Portrait icon. If you're inserting the paper horizontally, click on the Landscape icon. There is no connection between these icons and the Portrait and Landscape icons in the Page Layout dialog.
Scale	Determines how the picture fits on the page. In "True size" the picture is printed in its actual size. If the selected page size is smaller than the picture's size, the picture is printed over more than one page. In "Make fit" GEM Artline fits the picture to the selected page size, enlarging or reducing the picture as required.
Separation	Allows you to make color separations. If you're printing to a printer or phototypesetter, a separate page is printed for each color; if you're printing to a file, each color is printed to a separate page within the same file.

With the default gray levels, GEM Artline supports a maximum of sixteen colors in eight shades (128 hues in all). If you define gray levels, GEM Artline supports each of the sixteen colors in a maximum of one hundred shades (1600 hues).

In 4-Color separation, the picture is broken up into pages of cyan, yellow, magenta, and black. In Spot Color separation, a separate page is created for each color in the picture, up to the maximum of sixteen colors. When you are saving to a file, all pages are saved to a single file.

As it prints, GEM Artline displays a message, four examples of which are shown below. The content of the message depends on the type of color separation and where you're sending the output.

```
Printing to LPT1: (Y)
Creating EPS File ... (Y)
Printing to LPT1: (6)
Creating EPS File ... (6)
```

The first two messages are displayed when a 4-color separation is being made. The letter in parentheses identifies the color being printed—in this case, yellow. In the second two messages—for spot separation—the color is identified by a number that corresponds to its position on the color palette, starting from *zero*. Thus, yellow is color number 6.

In 4-Color separations the halftone screen angles are:

magenta	15°
black	45°
cyan	75°
yellow	90°

For unseparated printing and Spot Color separation, GEM Artline uses the default halftone screen angle of the output device.

Resolution This setting (also known as "halftone screen frequency") allows you to control the sharpness of the image in the PostScript output. Resolution is measured in *lines per inch*, where the higher the number, the sharper the resolution of the image. There is, however, a price. Because the resolution of a given output device is fixed—for example, 300 dpi for a typical laser printer and 2540 dpi for a phototypesetter—a higher halftone resolution results in a correspondingly lower number of available gray levels. This equation shows how the two factors are related:

Resolution = printer resolution / SQRT(gray levels)

where **SQRT** means "the square root of." Thus, 25 gray levels on a 300 dpi printer produces a resolution of 60 lines per inch.

$$60 = 300 / \text{SQRT}(25)$$

If you are using the nine predefined gray levels on a 300 dpi device, the default resolution of 60 is recommended. If you have defined additional gray levels, we recommend a resolution of 40 for a 300 dpi device and 150 for a phototypesetter.

Title Certain applications—including some desktop publishing programs—cannot display an encapsulated PostScript file on the screen but will display the contents of these two fields in the graphics frame.

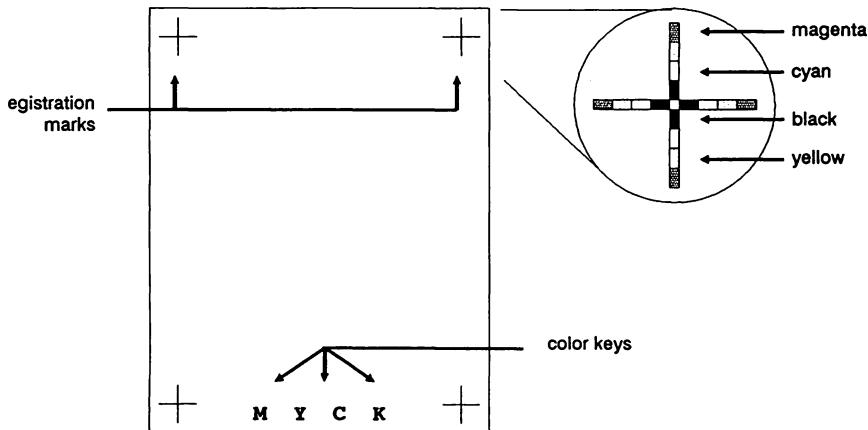
Comment

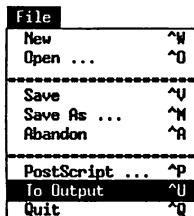
Preparing Pages for Color Separation

When you're preparing pages for color separation, two additional steps are *required*, to help the person who will print the final pages.

- You must add *registration marks* to the picture to ensure that the colors are properly aligned ("registered") to each other. Place them outside the printing area. The registration marks must contain each of the colors in the picture, as shown below.
- You must add a color key for each color in the picture. The color keys identify the colors that will be used for printing each page. Place the keys at the bottom of the page outside the printing area. For a 4-color separation, add the letters **M**, **Y**, **C**, and **K**—for magenta, yellow, cyan, and black, respectively. For spot color separation, add the number of each color used. In either case, use the color identified by each key. For example, the letter **M** must be magenta. Remember that white's color number is zero.

The illustration below shows a sample PostScript page layout. Note that because of the registration marks and color keys, you won't be able to use the entire page.



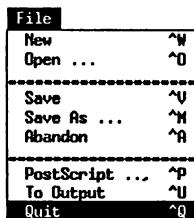


To Output

This command starts the GEM Output program so you can reproduce the current picture file on a device like a printer, plotter, camera, or the screen. You can also use GEM Output to print to a file.

If changes to the current file have not been saved, GEM Artline displays the "Abandon/Save" alert.

GEM Output is described fully in the *GEM/3 Desktop User's Guide*.

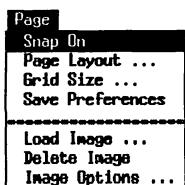


Quit

This command ends your session with GEM Artline and returns you to the point from which you started, either the GEM Desktop or the operating system command line.

If changes to the current file have not been saved, GEM Artline displays the "Abandon/Save" alert.

Page Menu

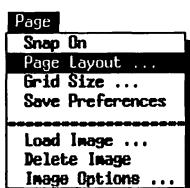


Snap Off/On

This command turns the grid snap on or off.

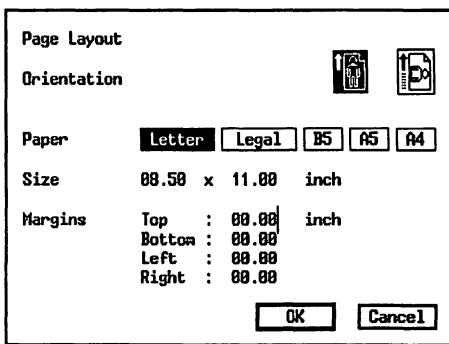
When the snap is on, all vertices or anchor points are automatically attached to the nearest grid point. (The grid does not have to be visible for the snap to be in effect.) Precise alignment and sizing of elements is much easier. When the snap is off, you can place anchor points and vertices anywhere on the drawing surface.

Alignment and sizing are not as precise, but you have greater freedom.

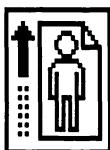


Page Layout

This command displays the Page Layout dialog so you can set the orientation, size, and margins of your page. You can also display the Page Layout dialog by double-clicking on the Rulers tool. The components of the Page Layout dialog are described on the next page.



Orientation Selects Portrait (vertical) or Landscape (horizontal) orientation. The icon for the current orientation is highlighted. To change orientation, click on the other icon.



Portrait



Landscape

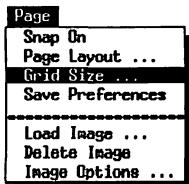
Paper Size Specifies the size of the paper on which you are printing. When you click on one of the buttons, the size—in the unit (inches, centimeters, or points) currently selected in the Preferences dialog—is shown in the line below. This line is purely informational; you can't edit it.

Margins Sets the top, bottom, left and right margins that will appear on the drawing surface. These margins appear as dashed lines to distinguish them from the grid lines. The units used are those selected in the Preferences dialog.

The margins don't restrict where you can draw; they are intended primarily as guides. For example, if your printer cannot print on the outermost quarter-inch of the page, you can set your margins to .25 to remind you not to draw in the non-printing area.

You can preset the values in the Page Layout dialog using the **Save Preferences** command. These values are loaded when you start GEM Artline.

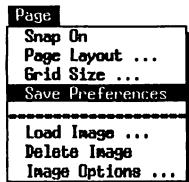
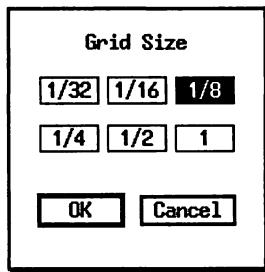
Note: You should set the page layout *before* you start a new picture. Changing the orientation or paper size later could result in picture elements "falling off" the drawing surface.



Grid Size

This command displays a dialog in which you can set the distance between grid points on the drawing surface. This distance is always displayed in the current units of measure set in the Preferences dialog. You can also display the Grid Size dialog by double-clicking on the Grid tool.

The Grid Size command only determines the distance between grid points. The Hide/Show Grid command in the Options Menu determines whether the grid is actually visible, and the state of the Snap Off/On command in the Page Menu determines whether elements snap to the nearest grid point.



Save Preferences

This command saves the current "setup" of GEM Artline, including page layout, directory path for opening files, and grid settings. The preferences you save become the defaults that are in effect the next time you start GEM Artline. Here's what is saved when you choose the Save Preferences command:

- default directory paths in the ITEM SELECTOR when you choose one of these commands:
 - Open (File Menu)
 - Load Symbols (Symbols Menu)
 - Load Image (Page Menu)

- current settings in the Preferences dialog:
 - performance level (Quality, Auto, or Speed)
 - whether to keep backup files
 - number of colors (8 or 16)
 - units (centimeters, inches, or points)
 - default symbol file
 - directory from which GEM Artline loads fonts
- current Orientation, Paper Size, and Margins from the Page Layout dialog
- current grid size, plus the status of the grid and rulers (shown or hidden) and the snap (on or off)
- current settings in the Image Options dialog:
 - foreground and background color
 - dither pattern
 - image size

Note that each GEM Artline file contains its own page layout information (orientation, paper size, and margins). When you open a file, GEM Artline loads the page layout information contained in the file. If you then choose the New command, the page layout information from the last opened file is retained; GEM Artline does not revert to the default settings.

Before you save preferences, you should set your defaults:

1. Open any file in the folder you want as the default.
2. Load an image from the folder you want as the default.
3. Set all your preferences in the Preferences dialog. (A default symbol file is optional.)
4. Set the page layout, grid, rulers, and snap as you want them.
5. Set the image options for images you will trace.

When you have taken these steps, display the Page Menu and choose the Save Preferences command.

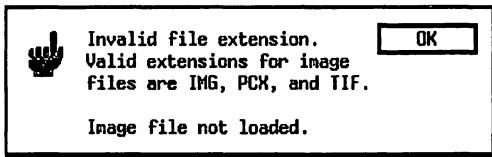


Load Image

This command displays the ITEM SELECTOR so you can load an image into the drawing surface background. You can then use the Quill and other tools to trace the image.

Note: Because image tracing requires a large amount of memory, it is available only if your computer has expanded memory.

By default, the file extension in the ITEM SELECTOR is .IMG. You can load files in the PCX or TIFF formats by changing the extension in the Directory line of the ITEM SELECTOR to .PCX or .TIF. If you change the extension to anything else (.GEM, for example), GEM Artline displays this alert:



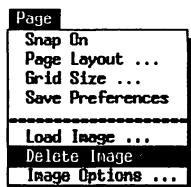
When you select a valid filename and exit the ITEM SELECTOR, the file is read into the background of the drawing surface. The loaded image is displayed with the options set with the Image Options command described on the next page.

Note: Only one image can be loaded at one time. If you load a new image while an image is present in the background, the old image is removed; no alert is displayed.

Images are always displayed in two colors—a *background color* and a *foreground color*—regardless of the number of colors in the original file. The background color is assigned to all parts of the original file that were white, and the foreground color is assigned to all other colors. For that reason, files in which there is no white *cannot* be used. See the description of the **Image Options** command for more about foreground and background colors.

Image files serve only as a drawing aid for tracing; they cannot be edited with GEM Artline.

Occasionally you might want to “hide” the background image to check the progress of your tracing. To do so, choose the **Hide Image** command from the View Menu. The **Hide/Show Image** command is described later in this section.



Delete Image

This command removes the currently loaded image from the drawing surface background *and* from memory. Don’t use this command if you only want to check how the tracing is going. Use **Hide Image** instead. When you choose the **Delete Image** command, the image is deleted immediately; GEM Artline does not display an alert.

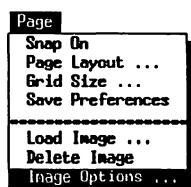


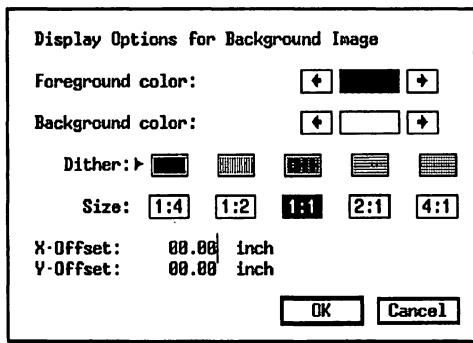
Image Options

This command allows you to set several options that determine how an image is displayed. The **Image Options** command is only available when an image has been loaded into the drawing surface background.

The **Image Options** command controls these aspects of the image you will be tracing (the terms will be explained in a moment):

- foreground and background color
- dither pattern
- image size
- X- and Y-offset.

When you choose the **Image Options** command, GEM Artline displays a dialog in which you can set values for each of these attributes. When you choose the **Save Preferences** command in the Page Menu, all of these values—except for the X-Offset and Y-Offset—are saved as defaults.

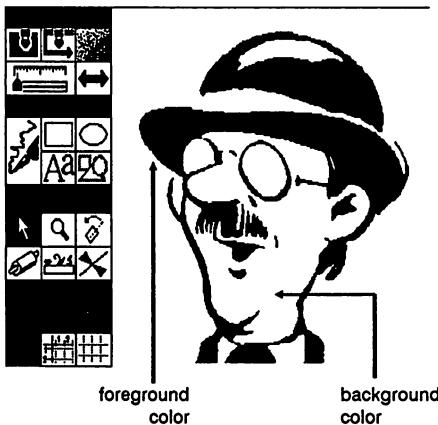


Foreground Color:

Background Color:

When an image is loaded for tracing, it is divided into a *foreground color* and a *background color* you can set with the **Image Options** command. All white pixels (dots) in the original image use the background color you've chosen. All other pixels in the original image use the foreground color.

The default background color is white and the default foreground color is black. When loaded into GEM Artline with the default in effect, all white areas of the image below would be white on the drawing surface. The rest of the image—the man's hat, moustache, hair, glasses, and so on—would be reproduced in black, regardless of their color in the original image.



To change the foreground or background color, click on the arrows on either side of the boxes labeled "Foreground Color" and "Background Color." These arrows allow you to scroll through the available colors. The number of colors available depends on your graphics card and screen driver and is not determined by the "Colors" setting in the Preferences dialog.

Dither: The foreground color of the image can be shaded by displaying it as a pattern of dots instead of as a solid color. This is known as *dithering*. On monochrome displays, dithering makes it easier to distinguish the image from your tracing. When you choose one of the four dither patterns, the background color (if any) shows through. An arrow indicates the current dither pattern. To change the dither, click on the button for the pattern you want.

Size: The size of the background image can be changed with these buttons. The initial default size of the image is 1:1. You can change the size to one quarter this default (1:4), one half (1:2), twice as large (2:1), or four times as large (4:1). You can save a different default when you save preferences.

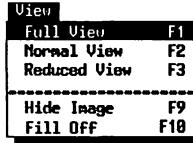
X-Offset: These values set the position of the image's upper left corner on the drawing surface. X-Offset sets the distance between the left edge of the drawing surface and the left edge of the image. Y-Offset sets the distance between the top of the drawing surface and the top of the image.

Y-Offset:

View Menu

The View Menu commands control how much of the drawing surface is visible in the work area—the “zoom factor”—as well as allowing you to hide the image you’re tracing and turn the fill off and on in picture elements and text.

Full View

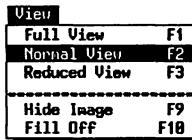


As its name indicates, the Full View command gives you as full a view as possible of the drawing surface. Depending on your monitor, the percentage of enlargement shown in the View Box at the bottom of the Toolbox is typically 12% or 25%.

Note that in Portrait orientation on some screens, you might not see the entire height of the drawing surface. Conversely, in Landscape orientation on some full-page screens, you might not see its entire width.

When you have the performance set to “Auto” (see the description of the Preferences command in the Options Menu), the redraw performance in Full View depends on the enlargement percentage. If Full View is a 12% enlargement, GEM Artline redraws for Speed, and curves appear slightly less smooth on the screen than they appear in Quality redraw. If Full View is a 25% enlargement, GEM Artline redraws for Quality, and curves appear as smooth on the screen as the resolution of the monitor will allow. (Remember, however, that this difference applies only to the screen; it has no effect on printed output.)

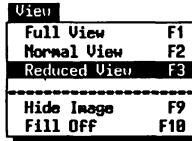
You can also select Full View by double-clicking on the drawing surface with the Magnifier.



Normal View

Normal View displays the picture at 100% view. This view does not display the entire picture. To bring a particular part of the drawing surface into the work area, use the scroll bars, sliders, or arrows. The *GEM/3 Desktop User's Guide* describes scrolling in detail.

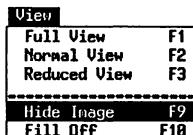
You can also select Normal View by pressing the F2 key.



Reduced View

The Reduced View command produces the smallest possible display of the picture. The enlargement factor is 6%. Reduced view is useful when you need to see all of a vertical (Portrait) picture and it is cut off at the top or bottom when you look at it in full view.

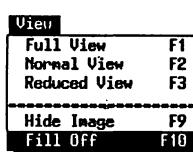
As mentioned previously, when the performance is set to "Auto," GEM Artline uses Speed redraw for anything under 25% enlargement. Curves drawn in this manner are less smooth than those drawn in Quality mode, although the difference will probably not be noticeable at this enlargement.



Hide/Show Image

The **Hide Image** command removes a background image from the screen so you can check the progress of your tracing. The image remains in memory, and you can redisplay it by choosing the **Show Image** command, which occupies the same position in the menu. (The **Hide/Show Image** command is a *toggle*; it switches back and forth between opposite states.)

Note: This command is not the same as **Delete Image**, which removes an image from memory, or **Load Image**, which reads an image into memory.



Fill Off/On

The **Fill Off** command removes all fill and line attributes from the elements displayed on the drawing surface. Elements appear as outlines only. (This effect applies to the screen only; it does not appear in output.)

This command is a *toggle*. The **Fill On** command turns the fill and line attributes back on.

The primary reason for turning the fill off is to increase the speed with which elements are drawn on the screen. If you have a complex picture, you'll find it draws considerably faster with the fill turned off. You might also find it easier to trace images with the fill turned off.

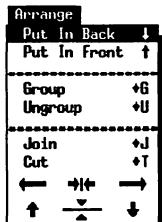
In addition, GEM Artline automatically turns off the fill when you click on the **Plane** tool. This makes it possible for you to see the anchor points or vertices you select with the **Plane**.

Arrange Menu

Elements on the GEM Artline drawing surface exist in *layers*. If you draw two figures side by side, the last figure you drew is actually *on top* on the drawing surface. If you move it so that it overlaps the first figure, you'll see that it blocks some or all of the first figure from view.

The commands in the Arrange Menu make it possible for you to put elements in back or in front of each other, to make or break groups of elements, and to align elements relative to each other. These commands are available only if you have selected one or more elements. In addition, the Arrange Menu contains two commands that allow you to cut an element into separate elements or join separate elements into a single element.

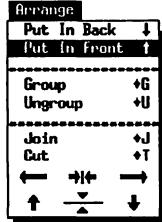
Put in Back



The **Put in Back** command takes the currently selected element (or elements) and moves it to the bottom layer on the drawing surface. If more than one element is selected, their order relative to each other remains unchanged.

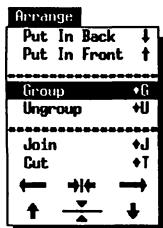
You can also put selected elements in back by pressing the down-arrow key.

Put in Front



The **Put in Front** command takes the currently selected element (or elements) and moves it to the top layer on the drawing surface. If more than one element is selected, their order relative to each other remains unchanged.

You can also put selected elements in front by pressing the up-arrow key.



Group

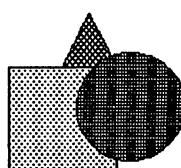
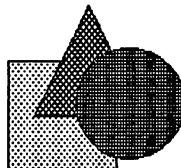
The **Group** command makes a group of all currently selected elements. The group is moved to the top layer on the drawing surface and is treated as a single element. It can be copied, rotated, skewed, or manipulated like any other element.

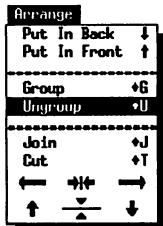
Here are two things to remember about groups:

- You can create groups that contain other groups. For example, you might make a group of elements A and B, select the A-B group and also element C, and then make a group of A, B, and C. In that case, A-B is still a group within the larger group.



- Grouping can move elements from one layer to another. The illustration at the right shows a simple example. Above, the three elements are shown in the order in which they were drawn. The square, the first element drawn, is on the bottom; the circle, the last drawn, is on top. Below, the square and circle have been grouped. The circle is still on top, but the square, because it is part of the group, is now on top of the triangle.

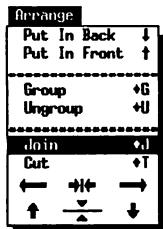




Ungroup

The **Ungroup** command breaks a selected group (or groups) into its component elements or groups. If the group being broken contains other groups, you must choose the **Ungroup** command one or more additional times to break those "subgroups."

After you choose this command, all the ungrouped elements are selected. By choosing the **Group** command, you can immediately regroup those elements.



Join

The **Join** command allows you to join anchor points or vertices of separate elements to produce a single element.

To join elements:

1. Select the Plane tool. (The **Join** command is only available when the Plane is selected.) GEM Artline automatically turns off the fill so you can see the anchor points or vertices you select.
2. Select a beginning or end point on the figures you want to join. Note that you can only join figures by their beginning or end points, not by their midpoints.

See the discussion of the Plane in Section 2 for information on selecting points.

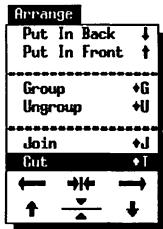
3. Display the Arrange Menu and choose the **Join** command. GEM Artline joins the figures by moving the selected point on the figure *in the background* to the selected point on the figure in the foreground. In other words, joining figures can (and usually does) change the shape of one of the elements.

If the two curves to be joined have different attributes, the curve which is further in the foreground (usually the curve most recently drawn) deter-

mines the attributes of the combination curve. If necessary, the desired curve can be brought into the foreground using the **Put in Front** command from the **Arrange** Menu.

You can also use the **Join** command to close a single element. For example, you can change a simple curve to a joined curve (these terms are defined in the discussion of the Quill in Section 2) by selecting the curve's beginning and end points and then choosing the **Join** command. When you join points on the same figure, GEM Artline moves the end point (indicated by the cross) to the beginning point (indicated by the x).

Cut



The **Cut** command allows you to cut a figure at an anchor point or vertex and thus create two separate figures.

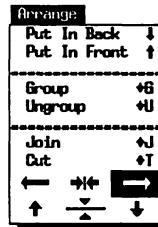
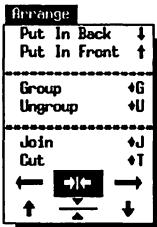
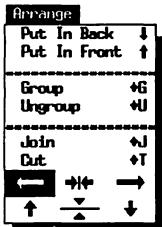
To cut a figure:

1. Click on the Plane tool.
2. Select any anchor point or vertex other than a beginning or end point.
3. Display the **Arrange** Menu and choose the **Cut** command. The anchor point now becomes the end point of one curve (indicated by the cross) and the beginning point of a second curve (indicated by the x). At the moment the two points overlap each other. You can select them separately by Shift-clicking on the point.

Alignment Commands

The alignment commands allow you to align two or more selected elements relative to each other—either horizontally (left, center, or right) or vertically (top, middle, and bottom).

These commands make precise alignment of elements possible even when the snap is turned off.



Left-Alignment

All selected elements are aligned to the left edge of the selected element furthest to the left on the drawing surface.

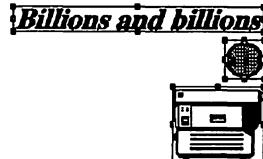
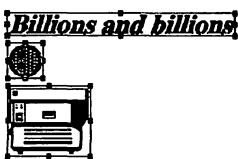
Center Alignment

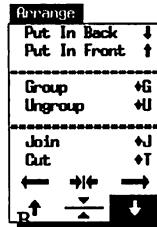
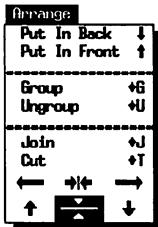
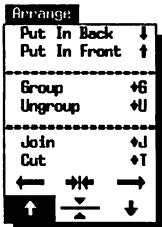
All selected elements are centered on an imaginary line halfway between the left edge of the selected element furthest to the left and the right edge of the selected element furthest to the right.

Right Alignment

All selected elements are aligned to the right edge of the selected element furthest to the right on the drawing surface.

The illustration below shows left, center, and right alignment.





Top Alignment

All selected elements are aligned to the top edge of the selected element nearest the top of the drawing surface.

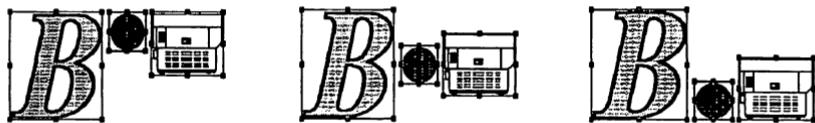
Middle Alignment

All selected elements are aligned to an imaginary midline between the top edge of the topmost selected element and the bottom edge of the selected element nearest the bottom of the drawing surface.

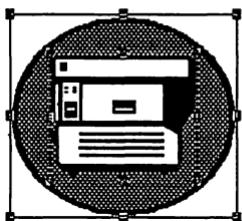
Bottom Alignment

All selected elements are aligned to bottom edge of the selected element nearest the bottom of the drawing surface.

The illustration below shows top, middle, and bottom alignment.



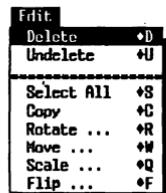
You can also combine alignments, as in the example below, where the two elements have been center and middle aligned.



Edit Menu

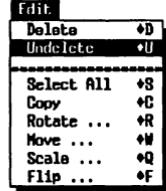
The Edit Menu commands allow you to perform a variety of manipulations on the element on the drawing surface. In several cases the commands extend the functionality of the tools in the Toolbox. Most of the commands are available only when you have selected one or more elements.

Delete



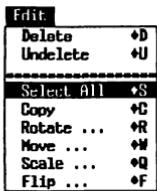
The **Delete** command removes all selected elements from the drawing surface. The most recently deleted element (or elements) is kept in memory and can be restored to the drawing surface with the **Undelete** command. The portion of memory for deleted elements is only "one level deep," which means that each time you choose the **Delete** command, any previously deleted elements are lost.

Undelete



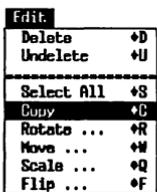
The **Undelete** command restores the last deleted element (or elements) to its original position on the drawing surface.

The **Undelete** command is not available if no elements have been deleted. In addition, you can only undelete an element once. You cannot use **Undelete** repeatedly as a means of copying elements. To copy elements, use the **Copy**, **Rotate**, **Move**, or **Scale** command, all found in this menu.



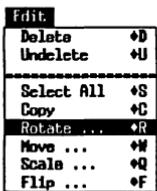
Select All

The **Select All** command selects all elements currently on the drawing surface, including those elements not visible in the work-area. You can copy, rotate, move, or group the selected elements, as well as change their fill and color attributes.



Copy

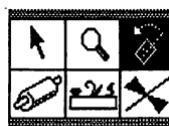
The **Copy** command makes duplicates of the selected elements on the drawing surface. The original elements are deselected and the copies are selected. Each copied element is drawn one grid point down and to the right from the original element. The size of this grid point offset depends on the current grid size.



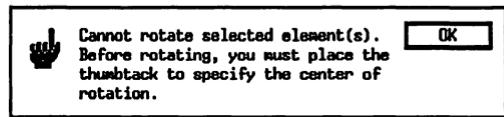
Rotate

The **Rotate** command allows you to rotate a selected element (or elements) around a center of rotation you select. This command is an extension of the Rotator tool described in Section 2.

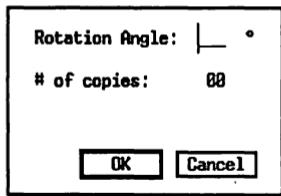
Before choosing this command, you must set the center of rotation. To do so, click on the Rotator tool. The pointer changes to a thumbtack. Move the thumbtack to the point on the drawing surface that you want as the center of rotation. When you click the mouse button, the thumbtack is attached to the drawing surface.



If you don't set a center of rotation, this alert is displayed:



After you place the thumbtack and choose the Rotate command, GEM Artline displays this dialog:



Enter the rotation angle in the first line. Enter the number of copies in the second line. If you leave this value at its default value of 0 copies, the selected elements are not copied; they are merely rotated around the thumbtack.

If you use the Rotate command to make copies, the copies appear on top of any other elements on the drawing surface, but the original remains in its present layer. After the rotation is finished, the last copy is selected.

The Rotate command is especially useful for making kaleidoscopic designs, where a several identical elements are arranged in a circle or arc.

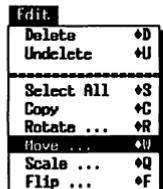
Note: To place all copied elements around a full circle, divide 360 degrees by the number of copies *plus one* (for the original) to determine the correct angle of rotation. For example, you can rotate elements around a circle by specifying

- a 30-degree rotation angle and 11 copies. (360 divided by 12 equals 30.)
- a 60-degree rotation angle and 5 copies. (360 divided by 6 equals 60.)

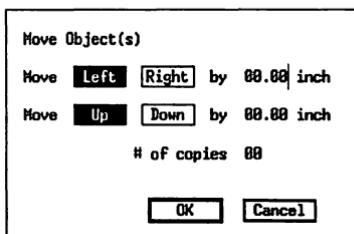
You cannot enter a negative rotation angle or a value containing a decimal point.

Note: Depending on the location of the center of rotation, the angle of rotation, and the number of copies, you can actually rotate elements right off the drawing surface. In that event, GEM Artline displays an alert telling you it made only those copies that are on the drawing surface. For example, if you specify twenty copies and fifteen of them would be off the drawing surface, GEM Artline makes five copies only.

Move



The Move command allows you to move the selected element (or elements) horizontally and/or vertically. You can also use this command to make copies offset from the original element. When you choose the Move command, GEM Artline displays this dialog:



Click on the buttons to move the element left or right, up or down. To set the distance the element moves, click on the appropriate field, press Esc to clear it, and type the value you want. (To enter a single-digit value—like 1 inch—you must type a zero and then the number. GEM Artline reads **01** as 1; it reads **1** as 10.) The unit of measure used in this dialog is determined by the unit chosen in the Preferences dialog.

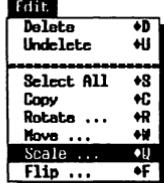
To make copies, enter the number you want in the “# of copies” field. If you leave the value at zero, the element is moved but no copies are made.

You can also use the Move command to move points selected with the Plane tool. When moving points, you cannot make copies of them.

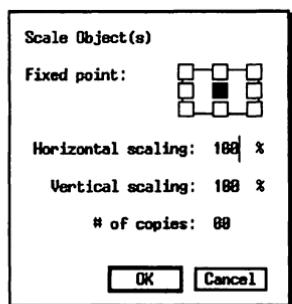
You can move or copy elements or move points off the drawing surface. If you’re moving points or a single element, GEM Artline does not allow you to enter values larger than the current page size. If you’re making copies, GEM Artline displays an alert if some of the copies would be off the page. Only those copies on the drawing surface are actually made.

Note: When you move an element—with the Move command or by dragging it with the mouse—GEM Artline retains the amounts in the Move dialog. This makes it possible for you to restore the element to its original position by clicking on the opposite directional buttons.

Scale

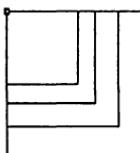


The Scale command allows you to reduce or enlarge a selected element (or elements) by percentages of the original size. You can scale horizontally (changing the element's width), vertically (changing its height), or both. You can also use this command to make scaled copies of the original. This feature permits graduated reductions or enlargements, where each copy is a given percentage of the size of the element immediately before it. Copies are layered on top of each other, and the last element remains selected.

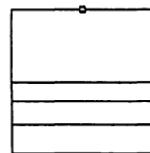


When you choose the Scale command, GEM Artline displays the dialog shown at the left.

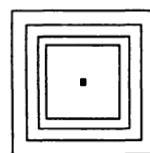
Choose the fixed point for scaling by clicking on one of the boxes in the dialog. This is the one point that will be identical on the original and all copies. You can scale to the corners, midpoints, or center of the element's frame. The illustration below shows examples of the three kinds of scaling:



corner scaling



midpoint scaling



center scaling

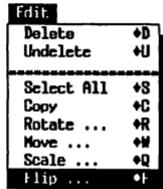
Enter the scaling percentages and number of copies in the dialog. Values greater than 100% enlarge the element; values less than 100% reduce the element.

Note: The scaling percentages refer to the individual dimensions (height or width) of the frame surrounding the element, not the area of the frame. The change in the area of the frame is determined by multiplying the two scaling percentages. For example, if you scale an element at 50%

horizontally and vertically, the resulting element is one *fourth* the size of the original, not one half its size. (50% times 50% equals 25%.) To scale an element to a percentage of its original area, take the square root of the percentage you want, and multiply by ten. You might not be able to scale the area to an exact percentage. For example, to scale an element to half its original area, you could scale the horizontal and vertical dimensions to 70% or 71%. (The square root of 50 multiplied by ten is 70.71. You could round it off in either direction.)

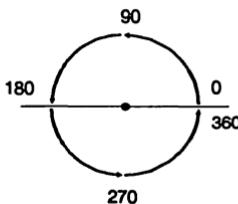
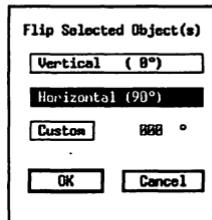
Selected elements can also be scaled "by hand" using the mouse. Scaling with the mouse is less exact, only allows you to change one element at a time, and does not allow you to make multiple copies.

Flip



This command displays a dialog that allows you to "flip" the currently selected element (or elements) to a mirror-image position.

You can flip the element horizontally or vertically, or you can specify a "Custom" flipping angle. GEM Artline flips the element over an invisible line drawn at the angle you specify. The flip line angles are measured in a counterclockwise direction, as shown below.



Note that flipping an object is not the same as rotating it.

Symbols Menu

The Symbols Menu contains the commands used in working with GEM Artline symbols and symbol files themselves, with these exceptions.

- Configuring the program to automatically load a symbol file is done with the Preferences command in the Options Menu.
- Display of the Symbol Selector can be turned on and off using the Hide/Show Symbols command in the Options Menu.

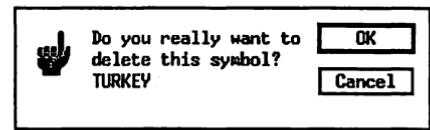
Symbols are described in detail in Section 2.

Delete Symbol



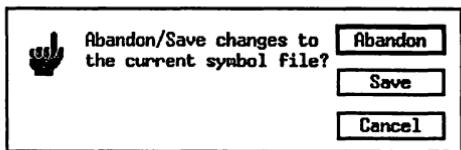
This command deletes the symbol visible in the Symbol Selector window from the current symbol file. When you choose the Delete Symbol command, GEM Artline displays this alert:

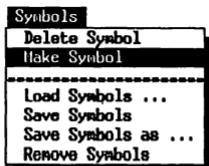
Although you have deleted a symbol from the symbol file, the changed symbol file is not saved until you choose the Save Symbols or Save Symbols As commands in this menu.



If you have changed the current symbol file and have not saved the changes, GEM Artline displays the alert shown below when you choose any of these commands:

- Remove Symbols
- Load Symbols
- To Output
- Quit



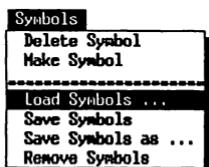
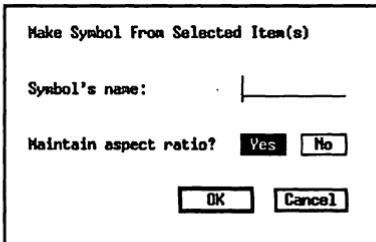


Make Symbol

The **Make Symbol** command defines the selected element (or elements) as a symbol and adds it to the current symbol file. If no symbol file has been loaded, GEM Artline creates a new "placeholder" file in memory and adds the new symbol to this file. To save this symbol file to a disk file, choose the **Save Symbols As** command from this menu.

When you choose the **Make Symbol** command, GEM Artline displays this dialog:

The symbol's name can contain up to 12 characters—letters, numbers, or underscores. *Aspect ratio* is described and illustrated in Section 2.



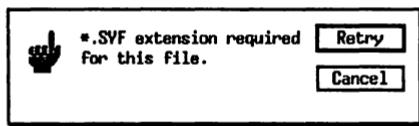
Load Symbols

This command displays the Item Selector so you can load a symbol file into memory. The default directory path for symbol files is C:\GEMAPPS\ARTWORK\SYMBOLS, but you can open symbol files in other folders by changing the path in the Item Selector.

If a symbol file is already loaded when you choose the **Load Symbols** command, it is removed from memory. If changes to the current symbol file have not been saved, GEM Artline displays the "Abandon/Save" alert. If you accidentally click on the Abandon button in the alert, you can click on the Cancel button in the Item Selector and not lose the changes to the symbol file.

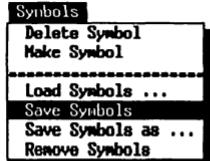
To set a new default directory path and automatically load a symbol file in subsequent GEM Artline sessions, choose the **Preferences** command from the Options Menu. The **Preferences** command is described later in this section.

If you type an extension other than .SYF in the Item Selector after choosing the **Load Symbols** or **Save Symbols As** command, GEM Artline displays this alert:



If you click on the **Retry** button, the Item Selector is redisplayed so you can enter another filename and extension.

Save Symbols



The **Save Symbols** command saves the current symbol file under the name displayed in the bottom of the Symbol Selector. The command is only available when the symbol file has been changed.

If the **Keep Backup Files** option in the Preferences dialog is turned off, the original symbol file is overwritten. If the **backup files** option is turned on, the original file is saved with a .BAK extension before the new file is written. To use the backup copy, you must first rename it so that it has the .SYF extension.



Save Symbols As

This command displays the Item Selector so you can name and save a new symbol file or save an existing symbol file under a different name. You need only enter the file's name in the Item Selector; GEM Artline automatically supplies the .SYF extension.

If you enter a file name that already exists in the current folder, an alert warns you that the existing file will be overwritten. You have three options:

Replace	The file is saved under its current name. The existing is overwritten if the Keep Backup Files option in the Preferences dialog is turned off.
New Name	The Item Selector is redisplayed so you can enter another name.
Cancel	GEM Artline terminates the Save Symbols As command.



Remove Symbols

This command removes the current symbol file from memory. If changes have been made to the symbol file and have not been saved, GEM Artline displays the "Abandon/Save Symbols" alert.

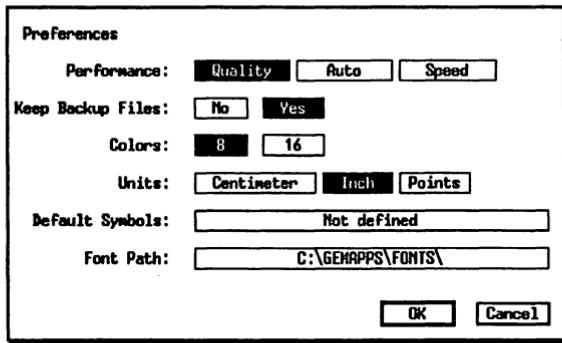
Options Menu

The Options Menu commands allow you to set certain characteristics of the operation of GEM Artline in the current work session and in future work sessions.

Preferences



When you choose the Preferences command, a dialog appears in which you can set various options. These settings can be saved with the Save Preferences command in the Page Menu so that they are in effect each time you start GEM Artline.



Performance: The Performance options (Quality, Auto, and Speed) determine how pictures are drawn on the drawing surface *on the monitor screen*—this option has no effect on printed output. There is an inverse relationship between drawing speed and picture quality.

For the best picture, click on Quality. Curves and text are reproduced on the screen with the highest resolution of the monitor. For the greatest drawing speed, click on Speed. In this setting, curves can appear quite rough, and circles can even appear as octagons. If you choose the Auto setting, GEM Artline uses Quality for views of 25% or greater, and Speed for views of 12% or 6%.

Keep Backup Files:

If this option is turned on when you save a picture file or symbol file, GEM Artline keeps the original file as a backup. The backup file is given the extension .BAK. You can use these files with GEM Artline, but first you must rename them to the .GEM or .SYF extension. Unless disk space is a major concern, we recommend you keep the option on.

Colors: This option lets you choose between an 8-color or 16-color palette for the Fill Color and Line Color tools in the Toolbox.

The choice should be based on the number of colors supported by your monitor and the number of colors supported by your printer. Your choice will have no effect on available memory or the performance of GEM Artline.

This option has no effect on the color palette for background images. This palette always contains as many colors as are supported by the screen driver. (See the Image Options command in the Page Menu.)

Default Symbols:

If you work with a certain symbol file very often, you can set your preferences so that the symbol file is automatically loaded each time you start GEM Artline. When you click on the large button following "Default Symbols," the ITEM SELECTOR appears so that you can choose the filename.

After you select a symbol file, you are returned to the PREFERENCES dialog, and the path and name of the symbol file appear in the "Default Symbols" box. If you click on Cancel in the ITEM SELECTOR, "not defined" appears in the "Default Symbols" box, and no symbol file is loaded at startup.

Font Path: This option lets you choose the folder from which GEM Artline loads font files (.AFF files) when you start the program.

The default font path is \GEMAPPS\FONTS, which is where your other GEM application fonts are kept. However, if you have many fonts (usually more than 50), the delay caused by loading the fonts or the amount of space taken up by the headers may become excessive. In this case you may wish to copy your most frequently used fonts into another directory and set the font path to this directory.

To set the path, click on the box containing the path-name. When the ITEM SELECTOR appears, set the directory line to the desired path, double-click on one of the font file names in this new directory, and click on OK. GEM Artline loads the fonts from this directory. (The previously loaded fonts are removed from memory.) To make this new path the default, choose the Save Preferences command from the Page Menu.

Hide/Show Rulers



If you select the **Show Rulers** command, rulers appear across the top and down the left side of the work area. The rulers' unit of measure (inches, centimeters, or points) is selected in the Preferences dialog, and the spacing in the rulers (for example, half an inch or a quarter of an inch) is set in the Grid Size dialog.

When the rulers are turned on, the command changes to **Hide Rulers**. You can hide the rulers if you want a little more space in the work area.

You can save the current setting of the rulers for the next time you start GEM Artline by choosing the **Save Preferences** command from the Page Menu.

You can also turn the rulers on and off by clicking on the **Rulers** tool in the Toolbox.

Hide/Show Grid

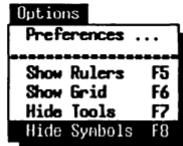


This command turns the grid on and off. Because the command is a toggle, the command name is always the opposite of the state of the grid. If the grid is on, the command reads **Hide Grid** so you can turn the grid off; if the grid is off, the command reads **Show Grid**. You can also turn the grid on and off by clicking on the **Grid** tool in the Toolbox.

Hide/Show Tools



The **Hide Tools** command removes the Toolbox from the left side of the screen, making the drawing surface larger. The **Show Tools** command causes the Toolbox to be displayed.



Hide/Show Symbols

The **Hide Symbols** command removes the Symbol Selector from the right side of the screen, allowing for more drawing space. The command is only available if you have a symbol file loaded. The **Show Symbols** command redisplays the Symbol Selector.

This command is not the same as the **Remove Symbols** command in the Symbols Menu. When you choose the **Hide Symbols** command, the symbol library remains loaded, and you can still draw the current symbol with the Symbol tool, even though the Symbol Selector is not visible. To select another symbol, though, you must redisplay the Symbol Selector by choosing the **Show Symbols** command.

ARTLINE Menu



This menu contains the Artline Info command, which displays an informational dialog about the program, including its release number. You might be asked for this number if you make a Technical Support call.

The ARTLINE Menu also lists the names of any desk accessories currently loaded into memory. If you find you don't have enough available memory to take advantage of all of GEM Artline's features, you can disable (turn off) the desk accessories this way:

1. Quit GEM Artline and return to the GEM Desktop.
2. Open the GEMAPPS folder and then the GEMSYS folder. (The path in the title bar should read C:\GEMAPPS\GEMSYS.)
3. Select the icon for the desk accessory you want to disable. The desk accessory icons have the .ACC extension—CALCLOCK.ACC, for example.
4. Use the Info/Rename command to change the extension to something like .ACX. Make the same change for any other accessories you want to disable.
5. Quit the GEM Desktop and then restart it. The desk accessories will no longer appear in the DESKTOP or ARTLINE Menus.

Basic Tools

This appendix describes the use of two basic tools—the mouse and the ITEM SELECTOR dialog.

Mouse and Keyboard Techniques

Here are the most commonly used mouse techniques and their keyboard equivalents:

Technique	Mouse	Keyboard
Click	Press the button once.	Press the Home key once.
Double-click	Press the button twice rapidly.	Press the Home key twice rapidly.
Shift-click	Hold down the Shift key as you press the button.	Hold down the Shift key as you press the Home key.
Drag	1. Hold down the button. 2. Move the mouse. 3. Release the button.	1. Press the End key. 2. Press the arrow keys to move the pointer. 3. Press the Home key.

Other techniques follow the same guidelines. For example, to Shift-drag, you hold down the Shift key as you drag.

Use only the mouse button on the left. GEM Artline does not respond to input from the other buttons.

Here are examples of the mouse techniques used with GEM Artline:

Click	Clicking is how you <i>select</i> a tool from the Toolbox or a command from a menu. For example, to begin drawing a curve, click on the Quill tool in the Toolbox.
Double-click	This technique is used to open elements for editing with the Quill and Plane tools. Double-clicking is also used for selecting a file and confirming your selection from within the ITEM SELECTOR dialog.

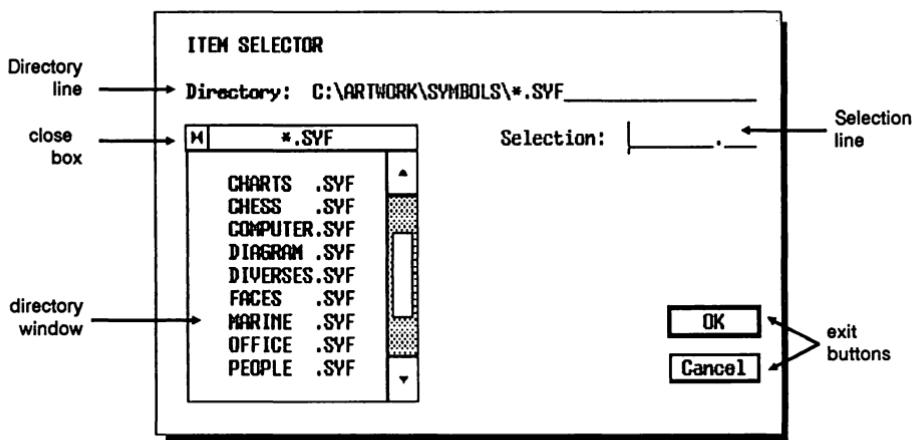
ITEM SELECTOR

The ITEM SELECTOR is a special dialog that GEM Artline displays so you can select files or name and save files. The ITEM SELECTOR is displayed when you choose any of these commands:

- Open from the File Menu
- Save As from the File Menu
- PostScript from the File Menu
- Load Image from the View Menu
- Load Symbols from the Symbols Menu
- Save Symbols As from the Symbols Menu

The ITEM SELECTOR and its components are shown on the next page.

ITEM SELECTOR Components



Directory Line

The *Directory line* tells you where the files listed in the directory window are located. The information in the Directory line is called a *directory path*. The table below shows how you read a directory path.

Directory Path

A:\PROPOSAL\LOGOS.GEM

What It Means

A file called LOGOS.GEM in a folder called PROPOSAL on drive A.

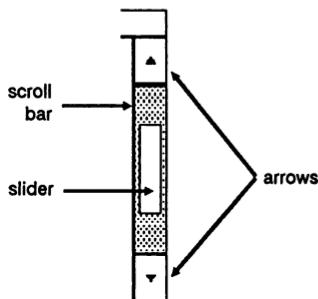
C:\GEMAPPS\ARTWORK\SYMBOLS*.SYF

All files of type .SYF in the SYMBOLS folder on drive C. The SYMBOLS folder is in a folder called ARTWORK, itself inside another folder, GEMAPPS.

The asterisk (*) *wildcard* character takes the place of a filename or file extension. ***.GEM** means "all files with type GEM."

Directory Window

The *directory window* lists all folders and files contained in the folder named on the Directory line. (Folder names always appear first in the directory window; a diamond precedes their names.) The window can show nine names at a time.



If the folder contains more than nine "items" (folders or files), use the scroll bar, arrows, or slider to move up and down in the directory window. These components of the directory window work just as they do in the GEM Artline window: you click on the scroll bar and arrows and drag the slider.

Selection Line

The *Selection line* is where you type the name of a file you are storing on disk or recalling from disk. In actual practice, you will probably only use the Selection line when naming a file for the first time. There is a faster way to open a file; it is described later in this appendix.

Changing the Directory Path

By changing the directory path, you can:

- Specify a different directory (folder) in which to store an image.
- Specify a different directory (folder) from which to open a file.

You can change the directory path with the mouse or by editing the Directory line.

When you change the directory path and exit the ITEM SELECTOR (by clicking on the OK button or pressing Enter), GEM Artline remembers the new path. The next time the ITEM SELECTOR appears in the current session, it shows the new path in the Directory line.

Using the Mouse

To use the mouse to move *down* the directory path—in other words, to see what's in a folder currently listed in the directory window—click on the folder's name.

For example, if the Directory line reads C:*.GEM and you click on the folder name ARTWORK in the directory window, this is what happens:

- The Directory line changes to C:\ARTWORK*.GEM.
- The directory window lists any folders in the ARTWORK folder, plus all files with the .GEM type.

To use the mouse to move *up* a level in the directory path (back toward the root directory), click on the directory window's close box. For example, if the Directory line reads C:\ARTWORK*.GEM when you click on the close box, this is what happens:

- The Directory line changes to C:*.GEM.
- The directory window lists the folders in the root directory, plus any files with the .GEM type.

Editing the Directory Line

You can use the left-arrow, right-arrow, Backspace, Del, and Esc keys on your keyboard to change the directory path in the Directory line.

You can use wildcards in the filename. The wildcard “*.*” causes all files in the current directory to be listed in the directory window; “*.GEM” causes all files with the .GEM extension to be listed.

After you change the Directory line, you must update the directory window to list the contents of the folder you named. To update the directory window, either click inside the directory window or press Enter.

For example, let's say the Directory line currently reads C:\GEMAPPS\ARTWORK\SYMBOLS*.SYF. You want to open a .GEM file from the PROPOSAL folder on a floppy disk in drive A. Here's what you do:

1. Click on the Directory line in the ITEM SELECTOR.
2. Press the Esc key to clear the Directory line.
3. Type **A:\PROPOSAL*.GEM**.
4. Click in the directory window or press Enter to update the information displayed in the ITEM SELECTOR.

Naming and Saving a File

Unless you want your file in a folder other than \GEMAPPS\ARTWORK, naming and saving for the first time requires just three steps:

1. When you are ready to save, choose the **Save As** command from the **File** Menu.
2. When the ITEM SELECTOR appears, type the name of your file in the Selection line. You don't have to type .GEM; the ITEM SELECTOR supplies it automatically.
3. Click on the ITEM SELECTOR's OK button or press **↵**.

To save to another folder or disk, change the directory path with the mouse or by editing the Directory line before entering the name in the Selection line.

If you're saving a file for the first time, the title bar in the GEM Artline window changes from **untitled** to the name you provided in the ITEM SELECTOR.

Opening a File

To open a file, choose the **Open** command, change the directory path (if necessary), and then do any of the following:

- Double-click on the filename in the directory window. This is the fastest method; it bypasses the exit buttons and the keyboard.
- Click on the filename in the directory window. The ITEM SELECTOR inserts the name in the Selection line. Click on **OK** or press **↵**.
- Type the filename on the Selection line. Then click on **OK** or press **↵**.

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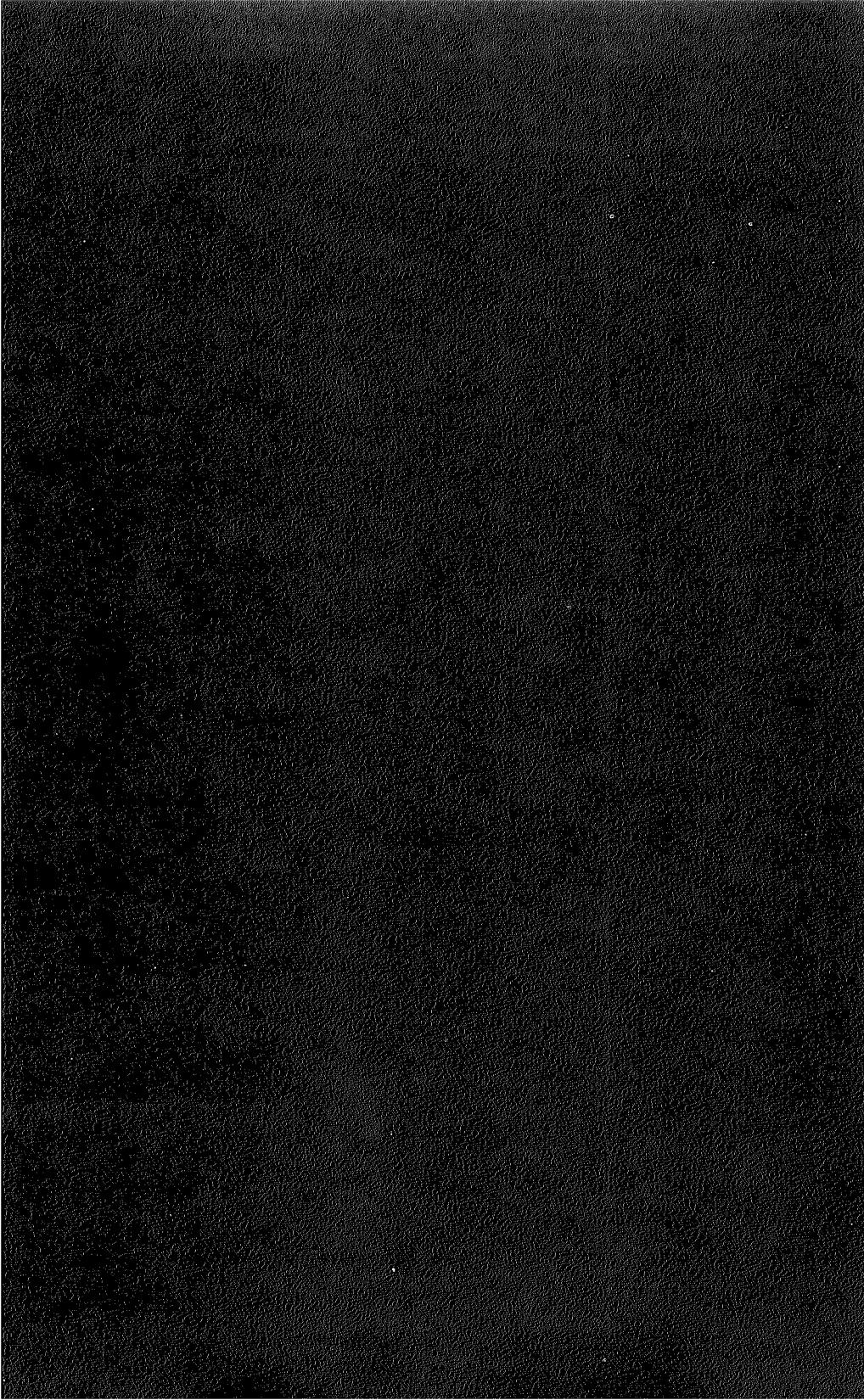
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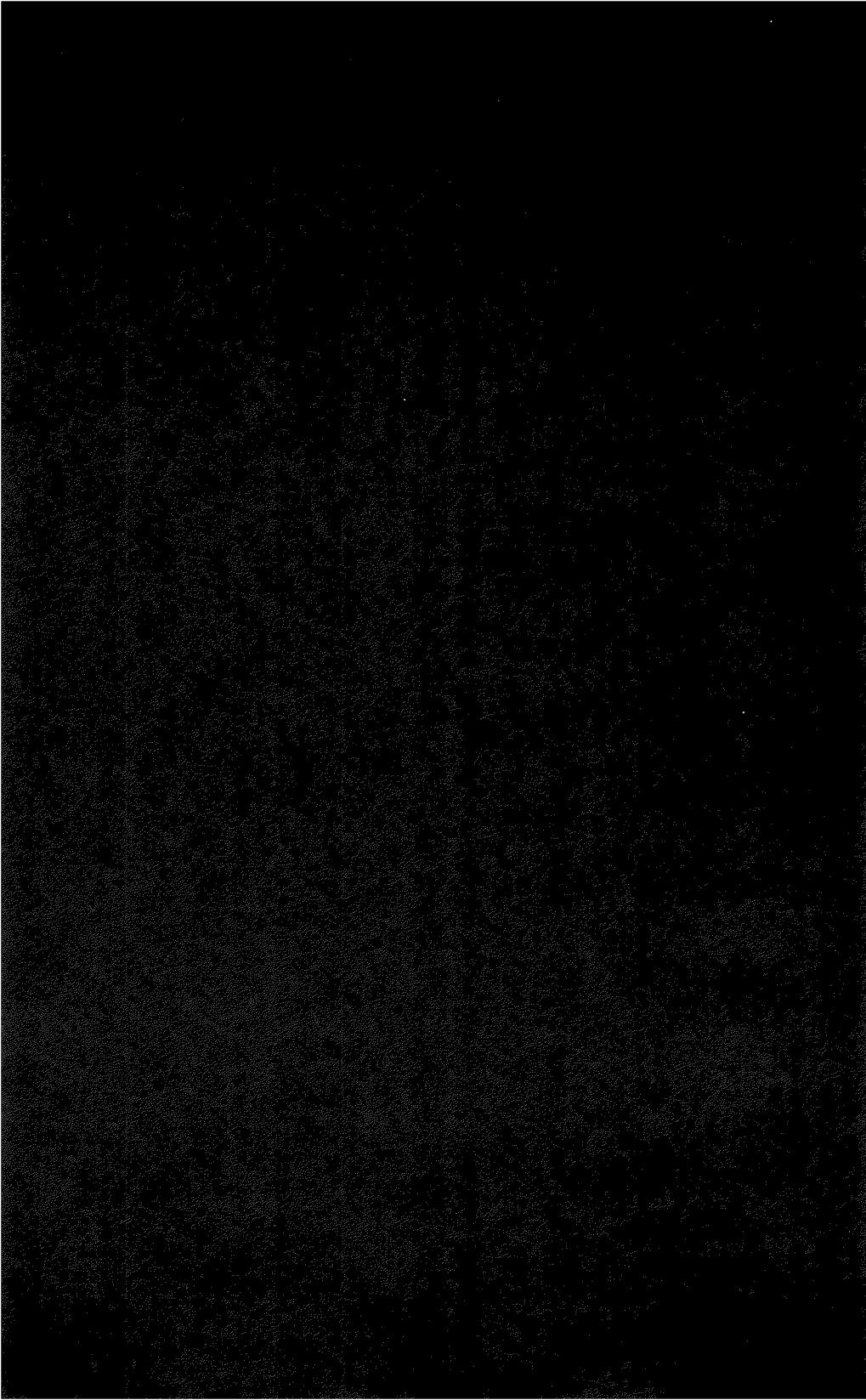
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Samples and Symbols

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GEM® Artline™ Samples and Symbols
Second Edition: November 1988

Introduction

This booklet contains illustrations of the sample files, symbol library files, and sample images included with GEM® Artline™.

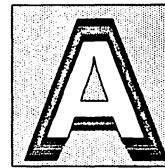
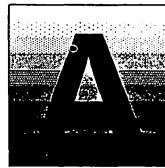
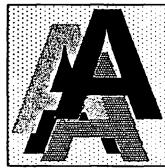
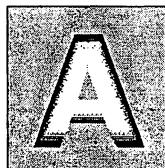
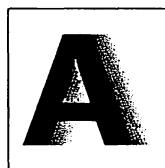
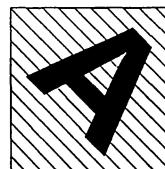
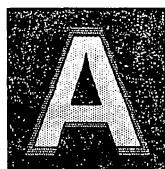
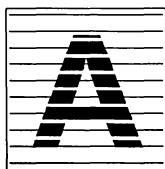
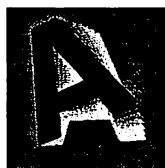
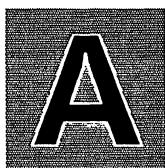
Section 1 contains the sample files. To use a sample file, select Open from the File Menu. When the ITEM SELECTOR appears, double-click on the name of the sample file you want displayed on the drawing surface.

Section 2 illustrates the symbols from the GEM Artline Symbol Libraries. To use a symbol from the Symbol Library, select Load Symbols from the Symbols Menu. For more information about this topic, refer to the *GEM Artline Reference Guide*.

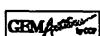
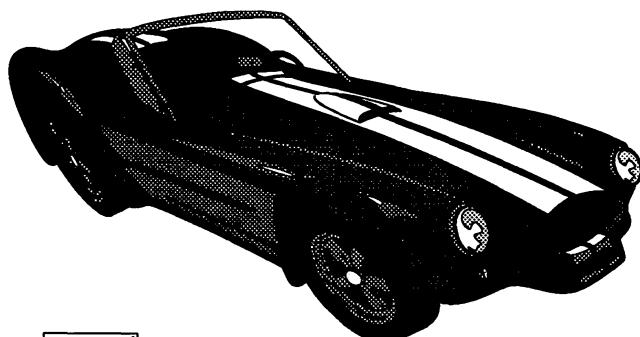
Section 3 illustrates the image files included with GEM Artline. These sample images are referenced in the *GEM Artline User's Guide*.

Sample Artwork

A.GEM



COBRA.GEM



*Cyan
Magenta
Yellow
Black*



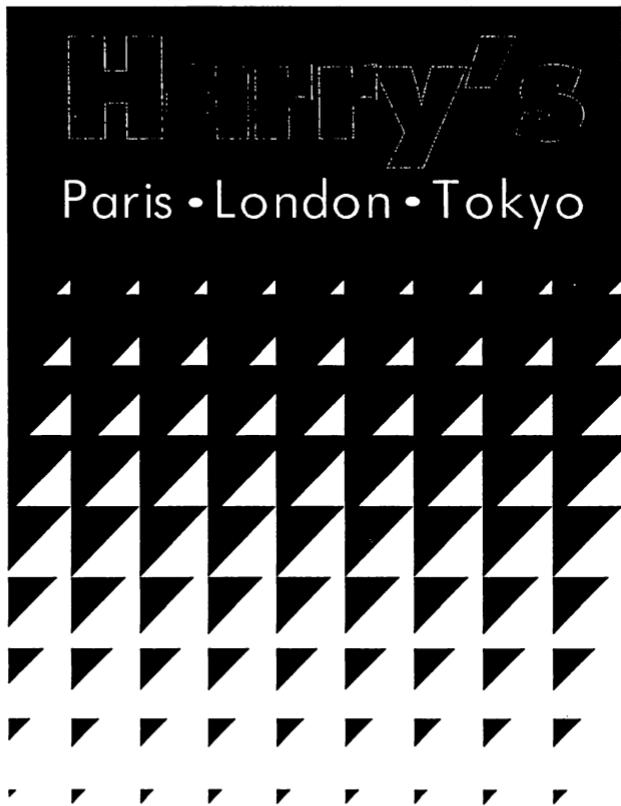
CYNTHIA.GEM



GIRL.GEM



HARRYS.GEM



GEM *Artiste* BY CO.

LIBERTY.GEM

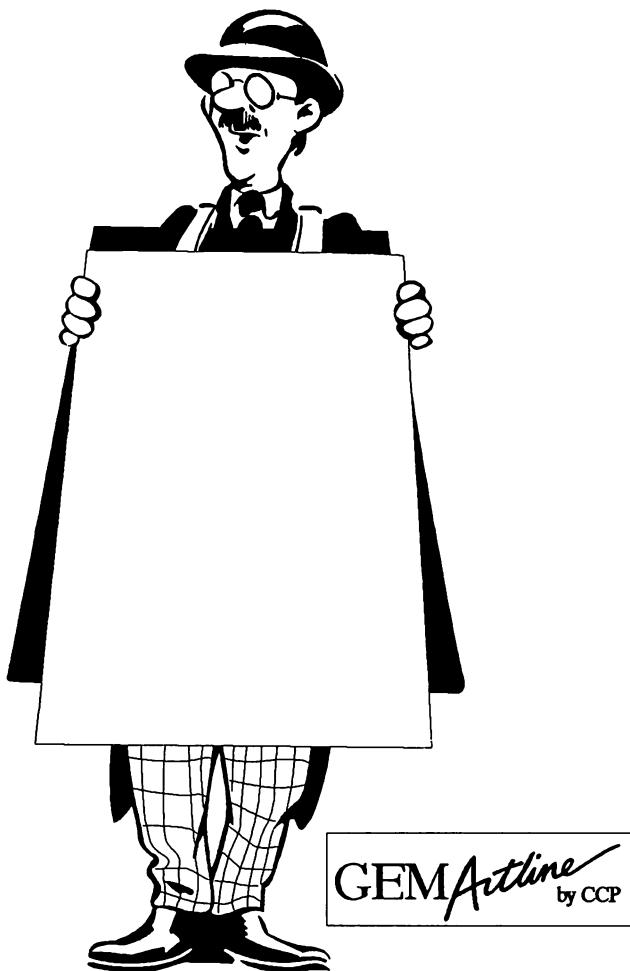
United States
of America



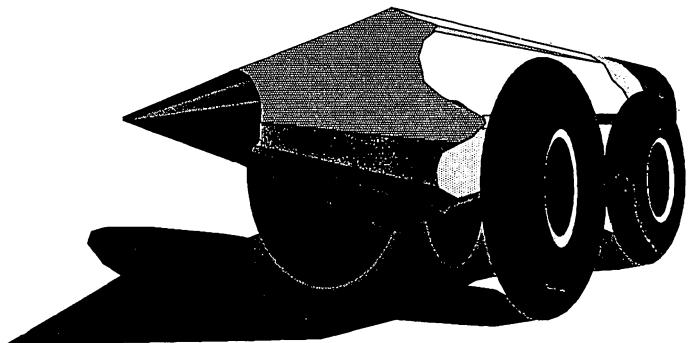
Bi-Centennial

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PAUL.GEM



PENCIL.GEM



GEM*Artline*
by CCP

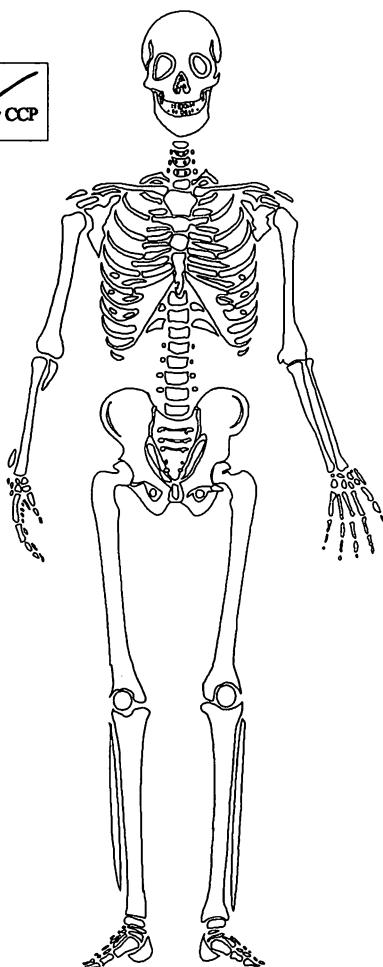
ROOSTER.GEM



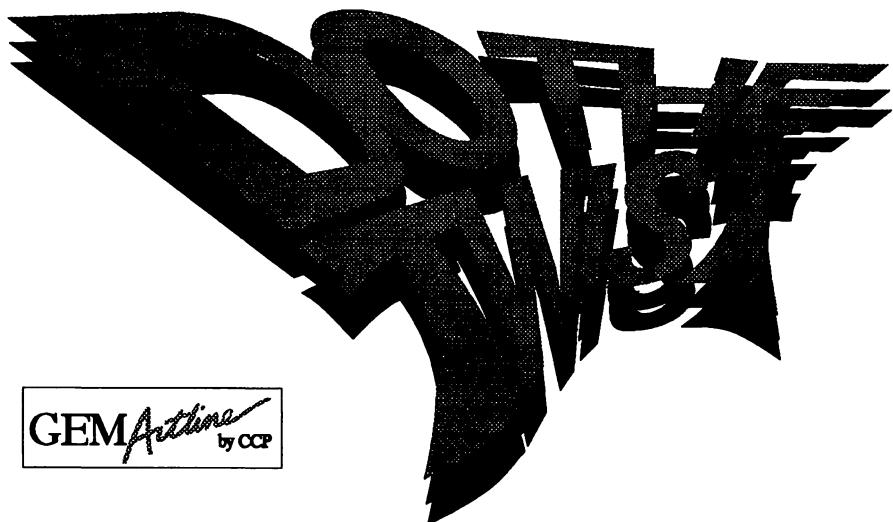
SKELETON.GEM

GEM Artline
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MEDICINE



TWIST.GEM

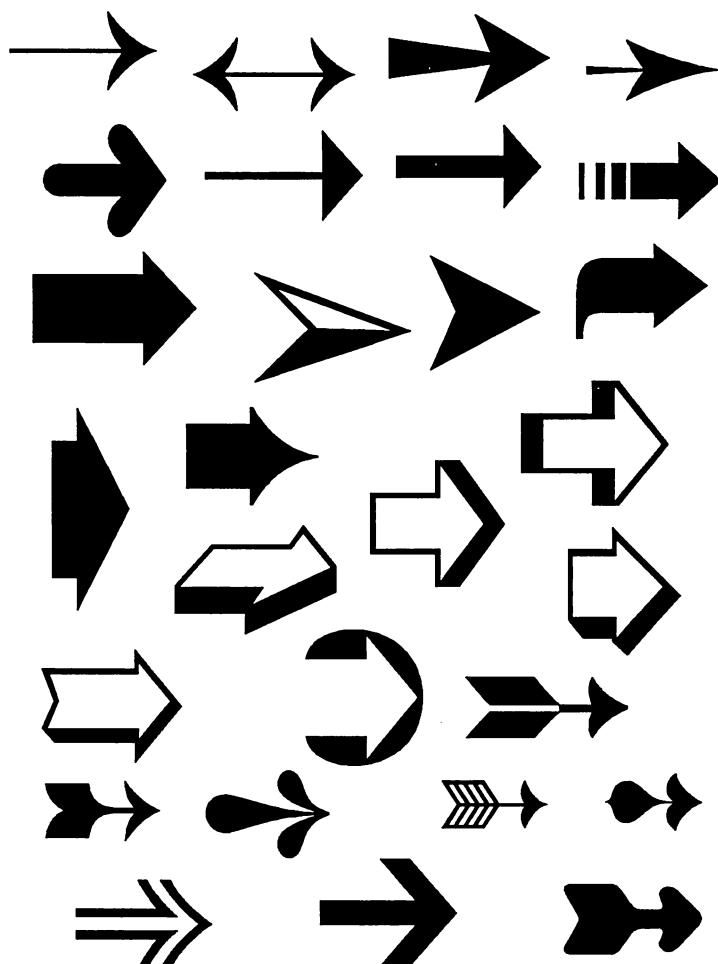


Symbol Libraries

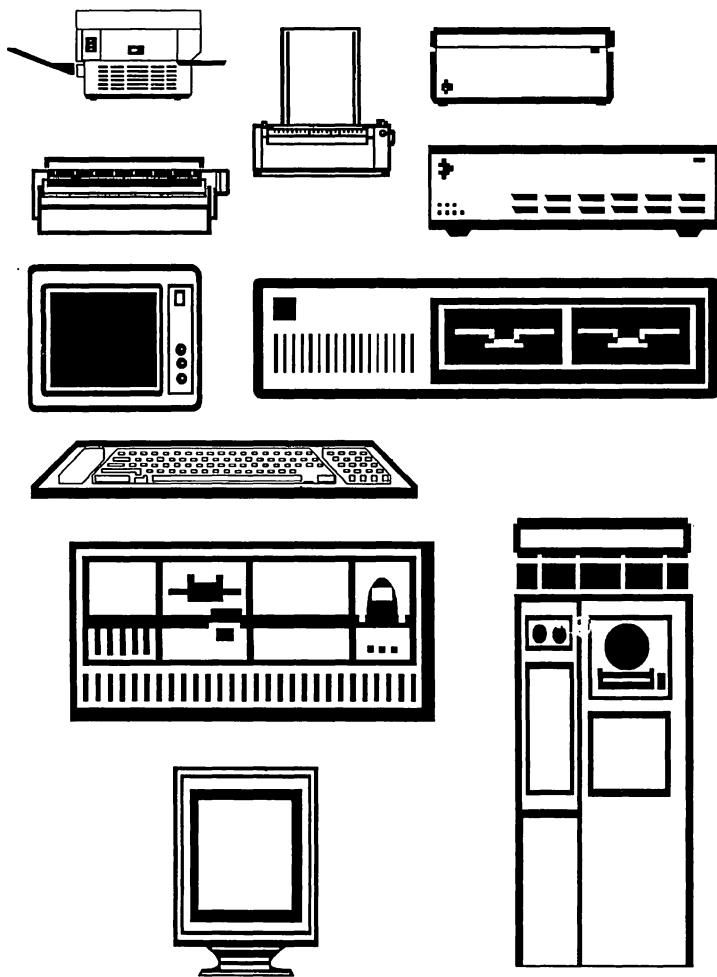
ANIMALS.SYF



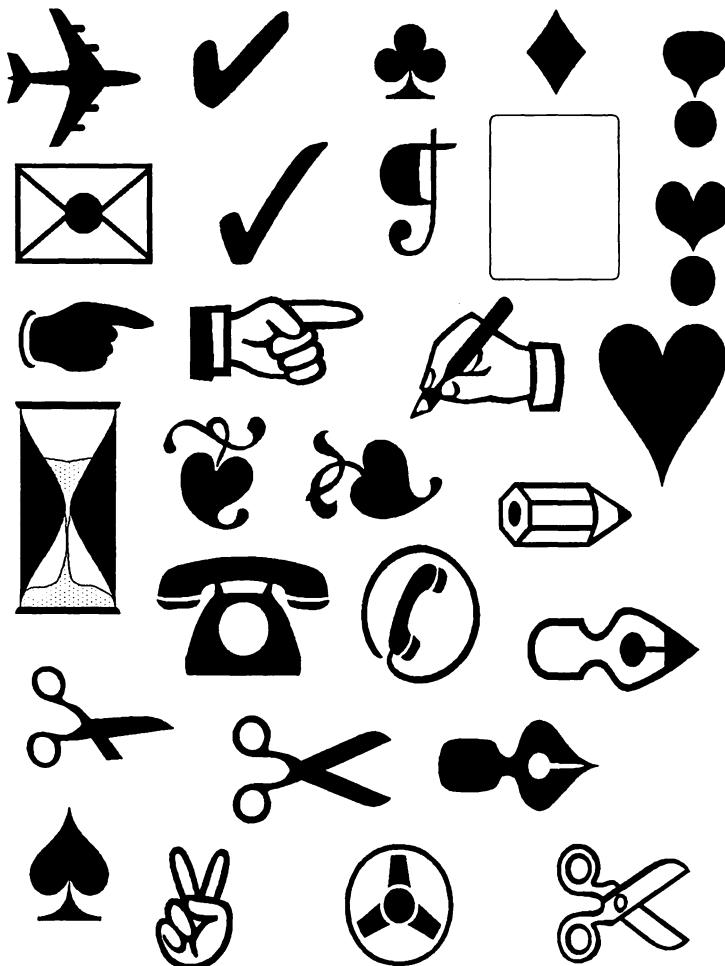
ARROWS.SYF



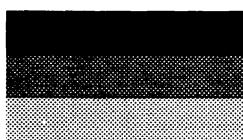
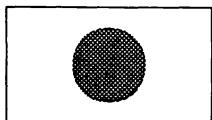
COMPUTER.SYF



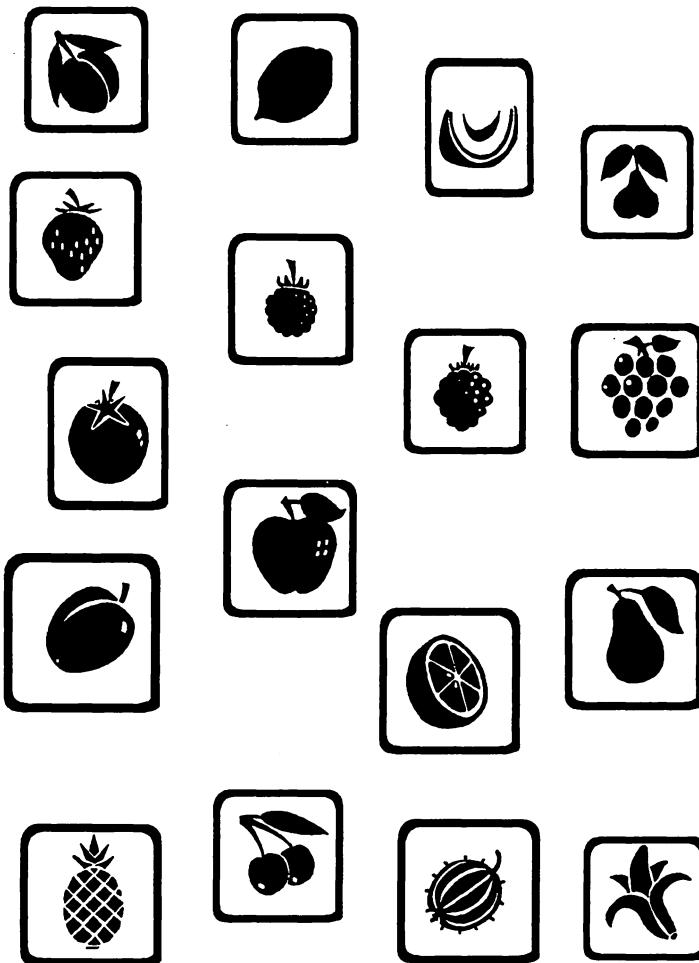
EXAMPLES.SYF



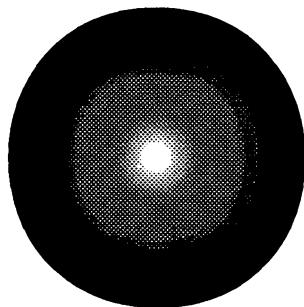
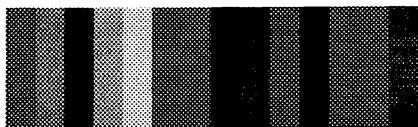
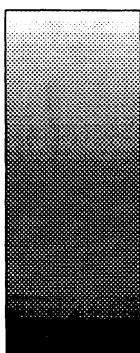
FLAGS.SYF



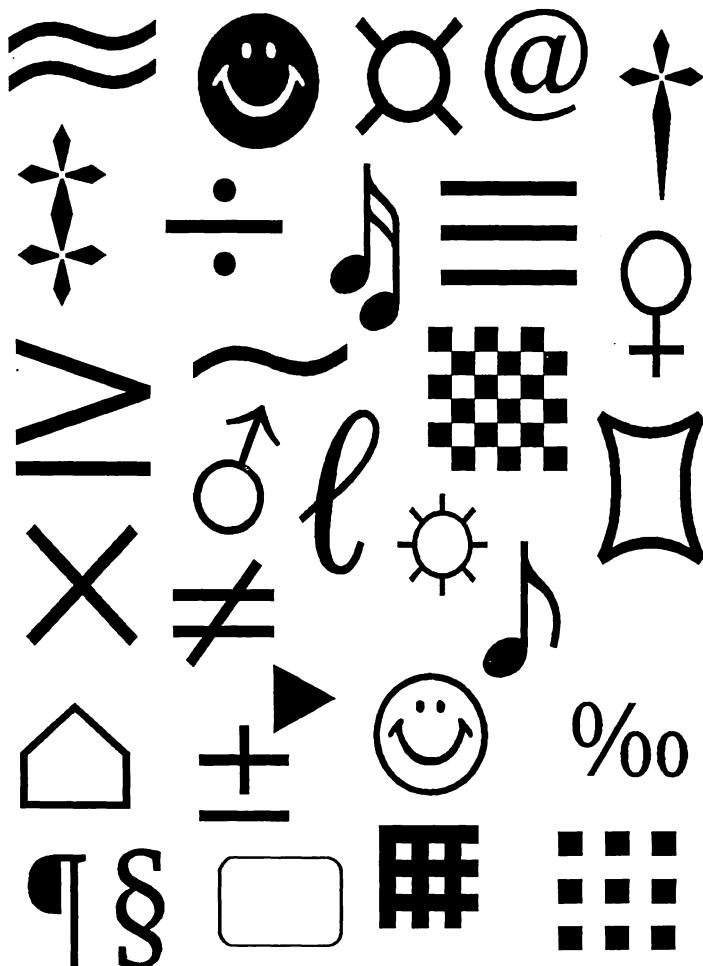
FRUITS.SYF



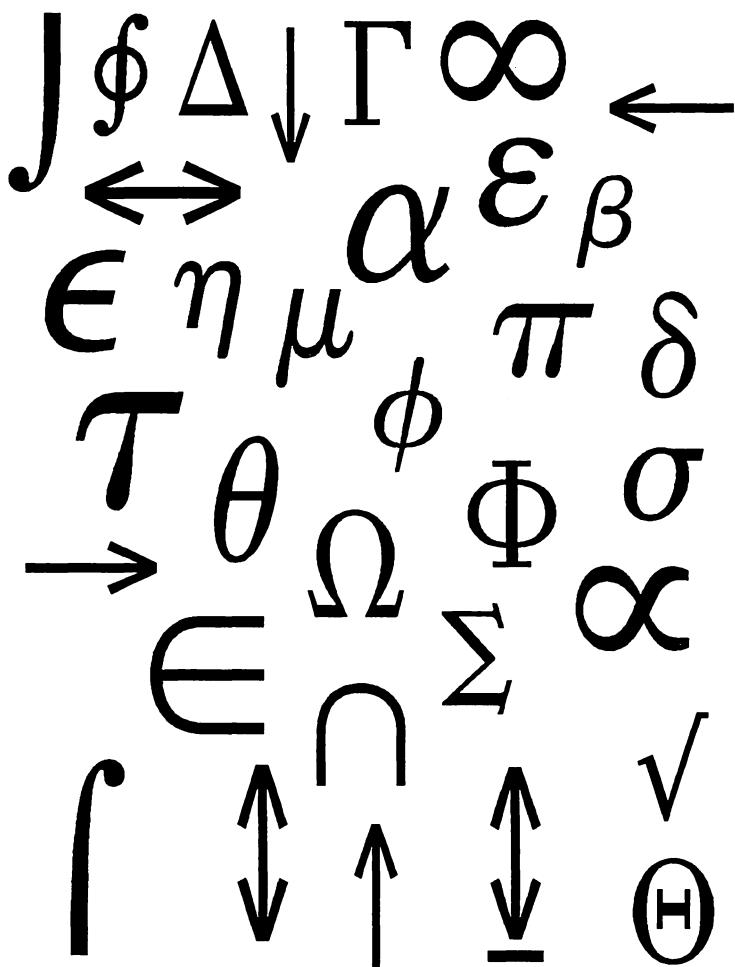
GRAYSCLE.SYF



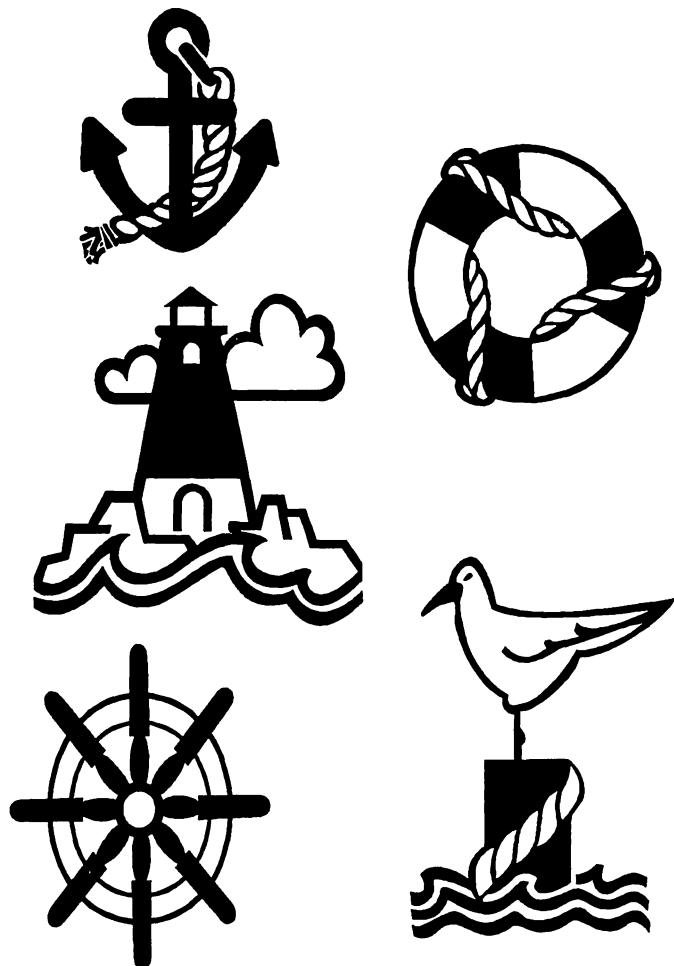
MIX1.SYF



MIX2.SYF

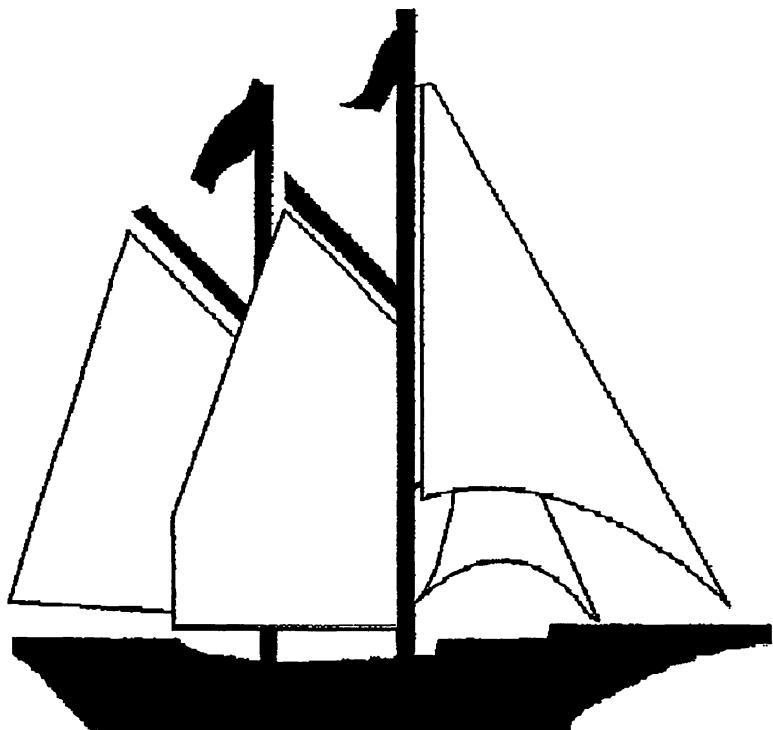


NAUTICAL.SYF

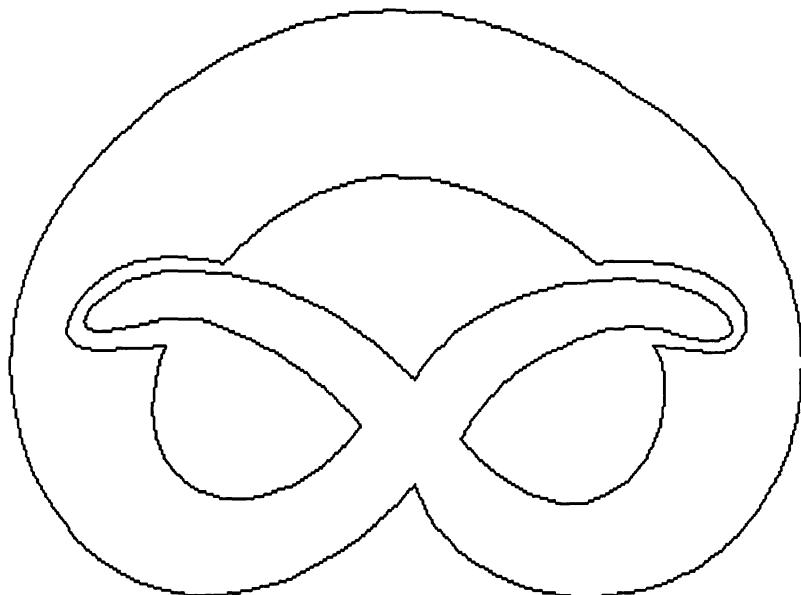


Sample Images

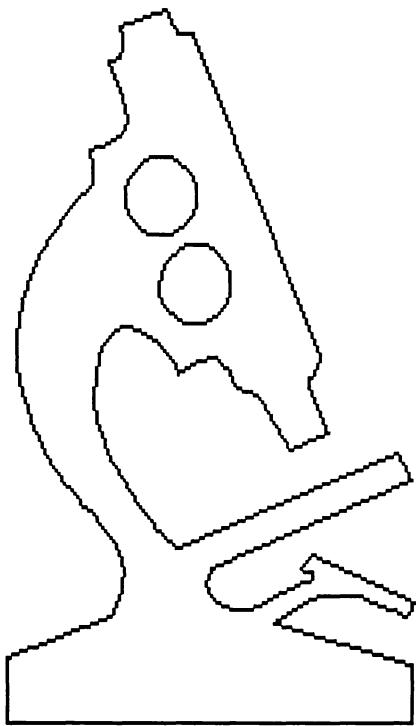
SAMPLE_1.IMG



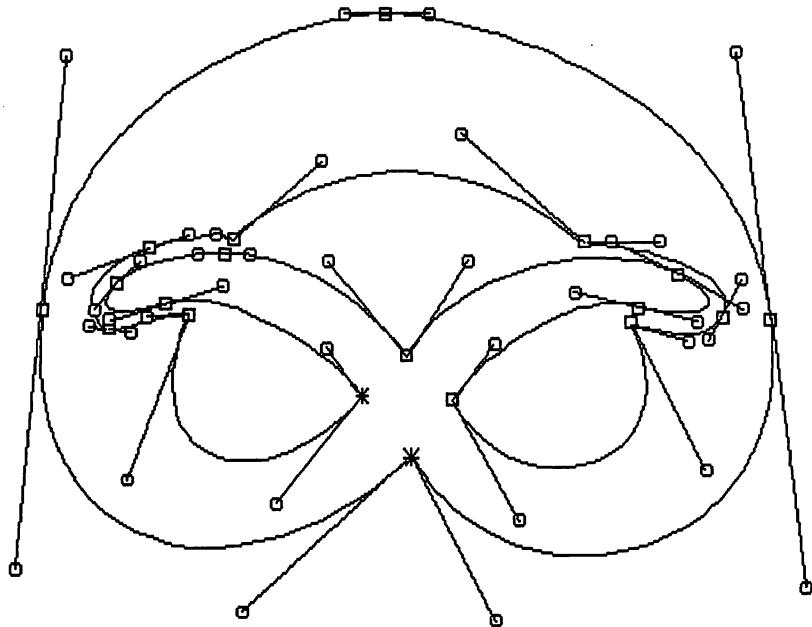
SAMPLE_2.IMG



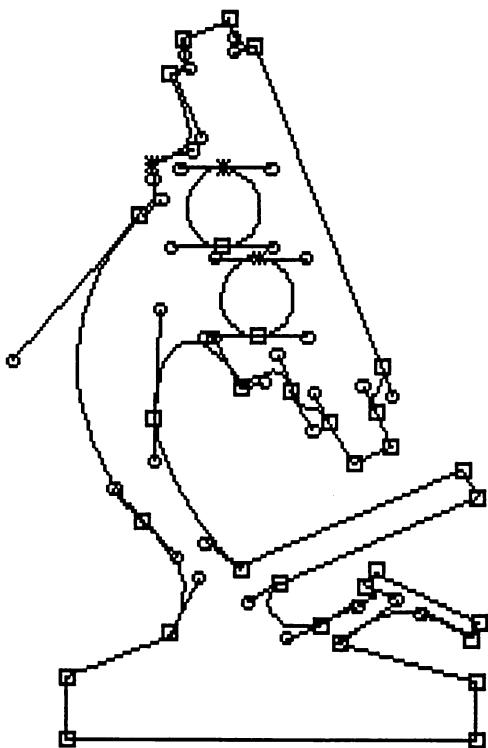
SAMPLE_3.IMG



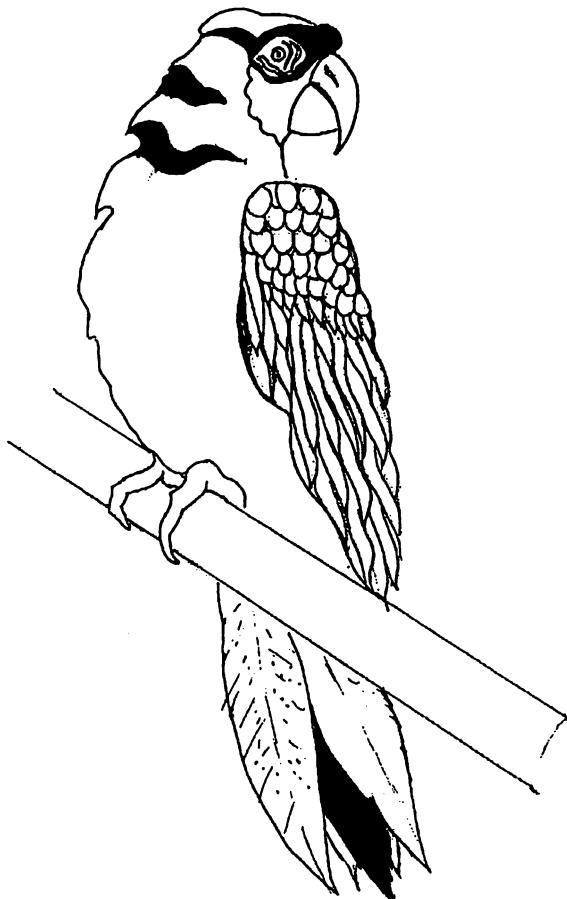
SAMPLE_4.IMG



SAMPLE_5.IMG



PARROT.IMG



#80536